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IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA

ORACLE AMERICA, INC.,

No. C 10-03561 WHA

Plaintiff,

v.

GOOGLE INC.,

Defendant.

**ORDER GRANTING IN PART
AND DENYING IN PART
GOOGLE'S DAUBERT
MOTION TO EXCLUDE
DR. COCKBURN'S THIRD
REPORT**

INTRODUCTION

In this patent and copyright infringement action involving Java and Android, defendant challenges plaintiff's third damages expert report. For the following reasons, the motion is **GRANTED IN PART** and **DENIED IN PART**.

STATEMENT

Two previous damages reports for plaintiff have been stricken. The first order dated July 22, 2011, rejected Dr. Ian Cockburn's damages report for failing to apportion the value of the asserted claims and instead using the total value of Java and Android in calculating damages, among other reasons (Dkt. No. 230). The second order dated January 9, 2012, partially excluded his revised damages report for using a flawed apportionment methodology, among other reasons (Dkt. No. 685). In his latest damages report, Dr. Cockburn advances new apportionment methodologies.

1 **1. GROUP-AND-VALUE APPROACH.**

2 One method advanced by Dr. Cockburn for calculating reasonable royalty for both patents
3 and copyrights is the so-called group-and-value approach. Under this approach, Dr. Cockburn
4 first identifies the components that would have been licensed from Sun to Google in the 2006
5 bundle. This would have included a license to Sun's Java mobile patents and copyrights,
6 promotion of the Java brand and trademark, and the benefit of Sun's engineering resources in
7 developing Android (Rpt ¶ 338).

8 Dr. Cockburn first apportions the 2006 licensing fee and lost convoyed sales (\$684
9 million) downward by \$86 million to account for projected engineering expenses Sun would have
10 incurred through its licensing partnership with Google, leaving \$598 million (Rpt ¶ 48). Then,
11 based on a qualitative patent ranking by Oracle engineers and a published study generally
12 regarding the distribution of patent values, he concludes that the six patents in suit are worth
13 somewhere between 10.2% and 32.7% of the total Java mobile patent portfolio (\$70 and \$224
14 million). Based on Dr. Steven Shugan's conjoint analysis, which had suggests that consumers
15 value the availability of applications (enabled by the asserted copyrights) approximately half as
16 much as application speed (enabled by the asserted patents) in smartphones, Dr. Cockburn sets
17 the value of the asserted copyrights at half the value of the asserted patents (Rpt ¶¶ 6, 54). With
18 all the relative values in place, Dr. Cockburn allocates the adjusted starting point of \$598 million
19 between the patents in suit, copyrights in suit, and patents not in suit using an algebraic formula
20 with only one variable to solve. These steps are now considered in detail.¹

21 **A. Ranking of Patents.**

22 To rank the six patents in suit with all other patents in the 2006 licensing bundle, a team of
23 Oracle engineers recently evaluated the Sun patents that would have been included in the 2006
24 bundle and ranked those patents based on expected technical contribution to a smartphone
25 platform (Rpt ¶¶ 391–97). The Oracle engineers began by identifying 22 Java technology groups,
26 such as *boot, *jit, and *interpreter, that would have been relevant to a smartphone platform in

27
28 ¹ His report was based on the six patents in suit. While the briefing was underway, one was
withdrawn with prejudice. After the hearing, another three rejected by the examiner were withdrawn if the trial
is held before the administrative appeals are completed, a withdrawal whose effect will be considered below.

1 2006, the time of the hypothetical negotiation (Reinhold Decl. ¶ 10). They then ranked those 22
2 groups by considering their importance to startup time, speed, memory and security for a
3 smartphone platform (*id.* ¶ 19). So, this step identified 22 technology groups.

4 Separately, the engineers created a list of over 1300 patents issued to Sun prior to June 30,
5 2006 by filtering for patents that include the terms “Java” or “bytecode” or listed James Gosling
6 or Nedim Fresko as an inventor. By reviewing the titles, abstracts, inventors, application dates,
7 and where necessary, the specifications and claims, the engineers were able to evaluate which
8 patents would have been included in the parties’ 2006 smartphone platform negotiations (*see*,
9 *e.g.*, Reinhold Decl. ¶ 17; Kessler Decl. ¶ 9). This process left 569 relevant patents that would
10 have been included in the 2006 bundle. The engineers then categorized those 569 patents into the
11 22 technology groups.

12 Next, the engineers rated the importance of each of the 569 patents on a three-point scale
13 (“1” being most valuable), within each technology group, based on the patented functionality’s
14 expected contribution to a smartphone platform’s startup, speed, or footprint (Reinhold Decl. ¶
15 21). Then, Oracle engineers counted the number of patents that were in the purportedly top three
16 technology groups (out of the aforementioned 22 non-overlapping technology groups) *and* had a
17 “1” rating. This count resulted in 22 patents (to avoid confusion, the reader must appreciate that
18 the number 22 here has no correlation with the 22 for the number of technology groups), which
19 included three of the patents in suit. Dr. Cockburn then decided that these 22 patents were the
20 most valuable of Sun’s Java mobile patent portfolio in 2006.

21 In its briefs, Google argued that the Oracle engineers were biased in their ranking of the
22 patents in the 2006 bundle. At the March 7 hearing, however, Google conceded that the issue of
23 bias was a point for cross-examination at trial and no longer a basis for its *Daubert* motion.

24 A different concern, however, arises in Dr. Cockburn’s methodology for determining the
25 “upper bound” of the ranking, and therefore the reasonable royalty analysis. Not satisfied that
26 three of the patents in suit were among the top 22 patents selected by Oracle engineers, Dr.
27 Cockburn further opines that those three patents in suit — the ’720, ’205, and ’104 patents — are
28 *the* most valuable of the top 22 patents, thus propelling the three to ever higher damage

1 calculations (from \$59 million to \$191 million). This further “top three” ranking lacks a reliable
2 basis and must be stricken.

3 Dr. Cockburn concedes that the Oracle engineers themselves were not able to differentiate
4 (*i.e.*, further rank) the top 22 patents in terms of value to the project (Rpt ¶ 409). Dr. Cockburn,
5 however, opines that because Google decided to infringe those three asserted patents (for damage
6 purposes we must presume the jury will find infringement), then those three patents must have
7 been the most valuable in 2006. This logic is too thin to support the huge weight piled thereon.
8 There is nothing in Dr. Cockburn’s report to show that Google planned in 2006 to incorporate
9 those particular functionalities covered by the three patents into Android. Moreover, as Dr.
10 Cockburn himself writes elsewhere in his report, patents in a single portfolio derive value from
11 complementing each other to prevent design around, meaning that unasserted patents are valuable
12 because they prevent design around asserted patents (Rpt ¶ 335). In addition, Dr. Cockburn’s
13 reasoning is internally inconsistent because three *other* asserted patents — the ’702, ’520, and
14 ’476 patents — do not even rank in his top 22 patents in terms of value.

15 Thus, the “upper bound” of the patent ranking and the reasonable royalty calculation
16 derived from it are **STRICKEN**. Specifically, Dr. Cockburn can only opine on his “lower bound”
17 calculation, in which each patent in his top 22 has equal value to each other. The calculation of
18 dollar values will be spelled out in the next step of the analysis.

19 **B. Patent-Value Studies.**

20 Building on the ranking by Oracle engineers, Dr. Cockburn performs additional steps to
21 calculate the dollar value of the now-ranked patents. He begins by relying on three patent-value
22 studies to estimate the relative value distribution of the now-ranked patents in the 2006 bundle.

23 A. GAMBARDILLA, P. GIURI, AND M. MARIANI, “THE VALUE OF EUROPEAN PATENTS —
24 EVIDENCE FROM A SURVEY OF EUROPEAN INVENTORS,” FINAL REPORT OF THE PATVAL EU
25 PROJECT, January 2005; D. HARHOFF, F. SCHERER, K. VOPEL, “CITATIONS, FAMILY SIZE,
26 OPPOSITION AND THE VALUE OF PATENT RIGHTS,” RESEARCH POLICY 32, October, 2002; J.
27 BARNEY, “A STUDY OF PATENT MORTALITY RATES: USING STATISTICAL SURVIVAL ANALYSIS TO
28 RATE AND VALUE PATENT ASSETS,” AIPLA QUARTERLY JOURNAL, VOL. 30, NO. 3, Summer

1 2002. For his specific numerical calculation, however, Dr. Cockburn only uses numbers from the
2 so-called PatVal study. Each of the cited studies concludes that the distribution of value among
3 patents in the portfolios studied is highly skewed, *i.e.*, that a handful of patents accounted for a
4 large percentage of the value of all patents in a sample set. Based on the results of these studies,
5 Dr. Cockburn concludes that the top 22 patents in Sun's Java mobile patent portfolio, which
6 consisted of 569 patents in total, were worth 77.1% of the 2006 patent portfolio's overall value,
7 and the combined value of the six patents in suit were worth between 10.2% and 32.7% (Rpt ¶¶
8 408, 412, Exh. 36).

9 In his report, Dr. Cockburn opines that based on his experience dealing with technology
10 licensing and his academic work, the observed value-distribution curves from the cited studies are
11 applicable to the expected value distribution of Sun's Java mobile patent portfolio (Rpt ¶ 404, 412
12 fn 420). The PatVal study calculated a value-distribution curve for European patents based on
13 approximately 10,000 survey responses from inventors covering nearly 10,000 patents across
14 countries and technology areas. The Harhoff study was based on 394 survey responses covering
15 772 German patents across technology areas. And the Barney study extrapolated a lognormal
16 distribution curve based on maintenance rates for 70,000 U.S. patents across technology areas.

17 Google argues that the cited studies are inapplicable to patent portfolios of a single
18 technology company based in the United States, such as Sun in 2006. In his declaration herein,
19 Dr. Cockburn further explains the studies' applicability to the facts of this action. Dr. Cockburn
20 explains that the value-distribution curve of a single company's distribution would be similar to
21 that of a broader sampling of industries and countries because the same distribution curve is seen
22 time and time again in a variety of contexts (Cockburn Decl. ¶¶ 4–12). As support, he appends a
23 study where the value-distribution curve of patents owned by Harvard is similar to broader
24 country-wide sample sets of U.S. patents and German patents (Cockburn Decl. Exh. A). He also
25 cites other studies that have also reported similar value distributions for patents limited to specific
26 product areas (Cockburn Decl. ¶ 8). He also describes his own personal experience evaluating
27 patent values in single portfolios where the value distribution was similar to the three studies
28

1 (Cockburn Decl. ¶ 9–12). Google has not submitted opposing studies to suggest otherwise. Dr.
2 Cockburn’s explanations are sufficient, for the purposes of *Daubert*, to rebut Google’s objections.

3 At the hearing and in its briefs, Google objected to the fact only 569 patents were selected
4 from many thousands then-owned by Sun as the sample set for plotting a distribution curve.
5 Google argues that Dr. Cockburn should have applied the studies’ distribution curves on all of
6 Sun’s patents, which was a much larger group. This argument will perhaps persuade the jury and
7 it may persuade others trained in such matters but it is not enough to exclude the analysis from
8 trial. As Dr. Cockburn and the Oracle engineers explain, the 569 patents were chosen based on an
9 allegedly objective criteria of whether they would have been included in the 2006 bundle. Since
10 the apportionment analysis attempts to apportion the value of the 2006 bundle, it is
11 methodologically permissible to apply a value-distribution curve only to patents that would have
12 been included in the 2006 bundle. Google has not shown a systemic bias in the selection of the
13 569 that would render the studies’ distribution curves inapplicable. The selection criterion was
14 merely relevance to smartphones, a criterion that has not been shown to misalign with the
15 value-distribution curves.

16 Therefore, Dr. Cockburn can opine that the 569 patents that would have been included in
17 the 2006 license bundle had a value-distribution curve similar to that observed in the three cited
18 studies. Dr. Cockburn can also opine that three of the patents in suit, the ’720, ’205, and ’104
19 patents, were among the 22 most valuable patents in the bundle (top four percent, calculated from
20 22 divided by 569) but cannot opine that those three patents were *the* most valuable of the 569
21 patents (top 0.5%, calculated from three divided by 569).

22 With the relative values of the 569 patents and the dollar amount of the adjusted start
23 point, Dr. Cockburn uses an algebraic formula to calculate the dollar value of the patents. Under
24 his “lower bound” calculation — in which, as discussed earlier, each patent in his top 22 has
25 equal value to each other — each of the 22 top patents has a reasonable royalty of approximately
26 \$20 million (calculated by averaging or spreading evenly the total value, approximately \$440
27 million, across the top 22 patents), before discounting for downward adjustments due to marking,
28 non-accused devices, and extraterritorial infringement. As discussed in the previous section, Dr.

1 Cockburn can only opine on this “lower bound” calculation (\$20 million per patent before
2 offsets), and *not* the “upper bound” calculation.

3 Requiring Dr. Cockburn to use the average value of the top four percent of the patent
4 portfolio (from the “lower bound” calculation), instead of using the extrapolated value of the top
5 0.5% (from the “upper bound” calculation), will largely obviate concerns of confidence interval
6 and sample size addressed next.

7 **C. The Court’s Own Concerns Regarding the**
8 **Value-Distribution Curves from the Cited Studies.**

9 The Court itself has raised a criticism that will now be stated if only for the record. This
10 criticism was not joined in by Google and therefore it will not be a ground for excluding the
11 report. Nonetheless, the reader will appreciate that this aspect of Dr. Cockburn’s approach is a
12 concern, at least to this district judge.

13 No one should doubt that the distribution of value in any patent portfolio will be skewed.
14 A few patents will typically represent a disproportionate share of the overall portfolio value. This
15 accords with the familiar 80/20 “rule of thumb” in life that twenty percent of any group accounts
16 for eighty percent of the results. In this case, however, the issue is the extent to which the
17 skewness is even more lop-sided than 80/20 such that a tiny part of any randomly selected
18 portfolio represents a very high percentage of the overall value of that portfolio.

19 Here, Dr. Cockburn selected three portfolios studied in the literature and examined the far
20 right “tail” of each of the three distribution curves. For the top twenty percent, the results varied
21 only slightly, showing 94.4 percent, 90.8 percent and 98.4 percent of the overall value was in the
22 twenty-percent segment (*see* Rpt Exh. 34). This is higher than the 80/20 rule of thumb but the
23 three results were fairly close and averaged around 94 percent, so this is not the concern. By
24 contrast, for the top one percent, the three sample portfolios varied widely: 52.6 percent,
25 42.1 percent, and 78.4 percent of the overall value of the three samples. When only three samples
26 are taken and the results vary widely, our level of confidence in their predictive power is not very
27 high. That is, we now have only three sample portfolios; what are the chances that a fourth
28 portfolio randomly chosen will conform to the three? While it seems likely that the overall
general shape of all the curves will be similar, it is only the tip of the right-hand tail that matters

1 for present purposes. For the tip of the tail — the far right one percent — the shapes vary widely
2 among the three and there is little assurance that a fourth sample will even fall within the range of
3 the one-percent data points associated with the three samples.

4 The reason that the one-percent results vary more widely seems clear — the one-percent
5 segment deals with very few data points within each sample portfolio, so few data points in fact,
6 that one must ask if the extreme right of the distribution curves should be disregarded as
7 “outliers.” But even if all the data points are fully credited (meaning that the outlier problem is
8 ignored), the fact remains that they produce widely varying results as among only three sampled
9 portfolios, a circumstance that counsels in favor of analyzing more portfolios until enough of a
10 pattern emerges as to the one-percent segment that would allow reasonably firm conclusions to be
11 drawn as to that tip-of-the-tail segment. Again, for the twenty-percent case, with so many more
12 data points factored in, the results are sufficiently close that we can have confidence in the more
13 compact range, even with only a sample of three. The opposite applies, however, to the
14 one-percent case with correspondingly fewer data points and far more volatility in the results.
15 This may be important in determining reliability when such large extrapolations are predicated, as
16 here, on such a small sample size.

17 This problem was raised *sua sponte* by the Court and addressed at the March 7 hearing.
18 Counsel for Google, however, conceded that the far right of the curve would be as suggested by
19 Dr. Cockburn and did not adopt this criticism. The Court, therefore, will merely note the
20 criticism for the record, lest it be said later, that this district judge approved this use of patent-
21 value distribution curves over this reservation.

22 **D. Patent-by-Patent Instead of Claim-by-Claim.**

23 Dr. Cockburn’s report does not break out the value of the unasserted claims of the patents
24 in suit versus the asserted claims (Cockburn Dep. at 90). Nevertheless, this order finds that a
25 claim-by-claim apportionment is not required under current patent law. Admittedly, this
26 conclusion retreats from prior suggestions by the Court that apportionment should be on a claim-
27 by-claim basis.
28

1 The reasonable royalty statute requires that the patentee is awarded “a reasonable royalty
2 for the use made of the *invention* by the infringer.” 35 U.S.C. 284 (emphasis added). Under
3 current USPTO guidelines, there is a presumption that each issued patent contains only one
4 independent and distinct invention. MPEP 802; *see* 35 U.S.C. 121, 37 C.F.R. 1.141. If each
5 patent covers only one invention, then each claim represents merely different shades of the same
6 invention and it is reasonable to require — in the hypothetical negotiation — that the infringer
7 license the entire patent. Thus, Dr. Cockburn is not required to apportion damages on a claim-by-
8 claim basis.

9 **E. Apportionment of Unasserted Copyrights.**

10 Google argues that Dr. Cockburn fails to adequately discount the value of unasserted
11 copyrights. Admittedly, Dr. Cockburn does not separately evaluate unasserted copyrights, such
12 as source code implementing the virtual machine and all class libraries not in dispute (Cockburn
13 Dep. at 151–52). Instead, Dr. Cockburn opines that the value of all copyrighted materials other
14 than the APIs at issue, *i.e.*, source code, is subsumed into the \$86 million reduction for Sun’s
15 projected engineering expenses because Sun engineers would have written all the necessary code
16 for Google (Rpt ¶¶ 362–86). Put another way, Dr. Cockburn opines that Google, in 2006, would
17 not have placed any value on Sun’s source code *in addition* to the value of work Sun engineers
18 would do under the 2006 licensing agreement to implement Java on Android.

19 Dr. Cockburn is wrong on this one. If, during a hypothetical negotiation in 2006, Sun had
20 taken its engineering know-how off the negotiation table, then Google would have subtracted \$86
21 million from its adjusted starting-point offer, per Dr. Cockburn’s calculation. There would,
22 however, have still been value associated with the source code and other copyrighted items that
23 Google would have received the option to use even through Google wound up electing not to do
24 so in the actual event.

25 The value of the unasserted copyrights should not be subsumed into the reduction for
26 engineering costs. Dr. Cockburn shall adjust his group-and-value calculation by deducting \$37
27 million, his calculated value of the unasserted copyrights, from the adjusted starting point of \$598
28

1 million. Accordingly, \$561 million shall be the total value of the copyrights in suit and 569
2 patents in Sun's Java mobile patent portfolio.

3 **2. INDEPENDENT-SIGNIFICANCE APPROACH.**

4 Dr. Cockburn advances an alternative method for calculating reasonable royalty. Under
5 the so-called independent-significance approach, Dr. Cockburn opines that at least 25% of the
6 2006 licensing bundle would have been attributable to the patent claims in suit. This opinion is
7 based on "his expertise" and (1) documents in 2006 on the importance of characteristics such as
8 processing speed, memory, and number of applications to Android, (2) documents in 2006 on the
9 availability of non-infringing alternatives to a Java license, (3) opinions of Oracle's technical
10 expert on the importance of the patent claims to Android, and (4) benchmarking studies
11 conducted in 2011 to determine the performance benefits of the patent claims on Android's
12 performance (Rpt ¶¶ 5, 60–68; Cockburn Dep. at 135–37). The independent-significance
13 approach does *not* consider the econometric study, conjoint analyses, or a breakdown of value for
14 each component of 2006 licensing bundle (*e.g.*, value of Oracle engineers, value of the copyrights
15 not in suit, and value of the non-asserted patents that would have been in the 2006 license bundle)
16 (Rpt ¶¶ 67, 325).

17 In rejecting Dr. Cockburn's prior attempt at apportionment, the January 9 order held, "[i]f
18 the \$100 million offer in 2006 is used as the starting point . . . then a fair apportionment of the
19 \$100 million as between the technology in suit and the remainder of the technology then offered
20 must be made." In Dr. Cockburn's latest report, the independent-significance approach makes no
21 attempt to do so.

22 Instead, the independent-significance approach relies on evidence that the patents in suit
23 would have been important to Google in 2006 to derive an apportionment of the 2006 licensing
24 bundle, without any analysis of the remainder of technology offered in the bundle. Under this
25 approach, Dr. Cockburn attributes at least 37.5% of the value of the 2006 offer to the patent
26 claims and copyrights in suit, leaving no more than 62.5% percent to be spread over the many
27 thousands of other know-how items included in the 2006 offer.

28

1 Just like the rejected apportionment methodology in the prior report, the fatal flaw in the
2 independent-significance approach is that the universe of know-how included in Android during
3 2008–2011 was different from the universe of know-how included in the 2006 offer. The January
4 9 order has already explained this apples-and-oranges problem (Dkt. No. 685 at 8):

5 Android today undoubtedly represents some Java know-how, some
6 technology owned by strangers to this litigation (presumably
7 licensed), and a fair dose of Google’s own engineering. The 2006
8 offer, in contrast, represented thousands of Java-related features,
9 many of which never made it into Android but nonetheless would
10 have had value. Dr. Cockburn failed to account for this disconnect.

11 While the evidence considered by the independent-significance approach arguably shows
12 that the patents in suit would eventually contribute to the success of Android, the fact remains that
13 the rest of the 2006 bundle does not bear any relationship to the rest of the Android. Reasonable
14 parties in 2006 might well have viewed the rest of the 2006 bundle as worth far more than the
15 patents and copyrights asserted in this action.

16 Oracle argues that the independent significant approach is similar to the damages
17 methodology approved by the court of appeals in *Finjan, Inc. v. Secure Computing Corp.*, 626 F.
18 3d 1197 (Fed. Cir. 2010). In that decision, the jury had found that defendant infringed three
19 software patents related to proactive scanning (techniques for defending against computer
20 viruses) and awarded reasonable royalty damages based on the testimony of patentee’s expert. At
21 trial, the patentee’s expert had invoked the entire market value rule and opined that after (1)
22 eliminating expenses not related to the patented functionality, such as research and development
23 expenses for the accused product and litigation costs, and (2) relying on evidence that the
24 patented technology was fundamentally important to the infringing product, among other factors,
25 the proper royalty rate was between 8%–18% of infringer’s actual revenue. The court of appeals
26 upheld the damages award. *Id.* at 1207–12.

27 *Finjan* is inapposite to the situation here. The expert in that action derived an
28 apportionment percentage of the infringing product’s revenue after discounting non-patented
value *in that product*, such as R&D expenses. Here, the independent-significance approach
attempts to derive an apportionment percentage of the 2006 licensing bundle without discounting

1 the value of non-asserted intellectual property *in that bundle*. This apportionment methodology is
2 flawed and shall be **STRICKEN**.

3 **3. CONJOINT ANALYSIS.**

4 Throughout his reasonable royalty analysis for each patent and copyright, Dr. Cockburn
5 cites Dr. Steven Shugan's conjoint analysis for an estimate of Android's increase in market share
6 due to infringement (*see* Rpt Exhs. 6–11). Moreover, in the group-and-value approach,
7 Dr. Cockburn expressly relies on the conjoint analysis for his assumption that the copyrights in
8 suit are worth half the value of the patents in suit. This ratio of one to two is critical to his
9 deriving an algebraic equation to do the apportionment (as explained below).

10 For the conjoint analysis, Dr. Shugan used a web-based survey to measure the relative
11 importance to consumers of seven smartphone features: application multitasking, application
12 startup time, availability of third-party applications, mobile operating system brand, price, screen
13 size, and voice command capabilities (Shugan Rpt at 10). The survey asked respondents to
14 choose between side-by-side comparisons of different smartphone "profiles." Each profile was a
15 written list of varied levels of functionality in each of the seven features — for example, one
16 phone might be described as (1) an Android phone with (2) a 4.5-inch screen that (3) can run five
17 apps at once (4) with a startup time of 2 seconds, (5) 300,000 available apps, and (6) voice dialing
18 and texting (7) available for a sale price of \$200. Respondents were instructed to assume that
19 every feature other than the seven listed features remained constant (Shugan Rpt App. E at
20 E12–E20). After collecting the respondents' selections, Dr. Shugan ran a regression analysis to
21 determine the relative importance of each feature to overall consumer product preference. This
22 estimate was then used by Dr. Cockburn in the group-and-value approach to allocate the value of
23 the 2006 bundle between the patents in suit and copyrights in suit. Dr. Shugan also calculated
24 changes in Android market share if the patented functionalities were removed. This estimate was
25 used by Dr. Cockburn in his reasonable royalty calculations for each patent and copyright in suit.

26 **A. Conjoint Surveys Generally.**

27 Consumer surveys are not inherently unreliable for damages calculation. *See Lucent*
28 *Technologies, Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1333–34 (Fed. Cir. 2009). Google's own

1 damages expert has written that conjoint surveys are appropriate for damages calculation in
2 litigation (Dkt. No. 738 at Exh. I).

3 Google argues that Dr. Shugan's conjoint analysis is too simplistic because "if 20% of
4 consumers value application start time more than other tested features, an increase in application
5 start time on Android phones would mean 20% drop in Android market share" (Br. 15). This is a
6 misunderstanding of Dr. Shugan's conjoint analysis. As illustrated by Exhibits 3–4 in Dr.
7 Shugan's report, the market-share estimate is based on changes in Android preference shares after
8 varying a particular product feature, holding all other features constant among different
9 Android models.

10 This order, however, need not decide the broad question of whether conjoint analyses are
11 rigorous enough for predicting changes in market share. As the following section explains,
12 Dr. Shugan's conjoint analysis in this particular instance is an unreliable predictor of
13 market share.

14 **B. Unreliable Market Share Calculation.**

15 Google argues that Dr. Shugan's conjoint survey results are unreliable because the
16 features selected to be surveyed, only seven in total, were purposely few in number and omitted
17 important features that would have played an important role in real-world consumers'
18 preferences. Google argues that this inappropriately focused consumers on artificially-selected
19 features and did not reliably determine real-world behavior. This order agrees — on this record
20 for this application.

21 Dr. Shugan's own focus-group research discovered 39 features that real-world consumers
22 said they would have considered when purchasing a smartphone, including battery life and
23 cellular network (Shugan Rpt Exh. 1). But instead of testing 39 features in his conjoint analysis,
24 Dr. Shugan selected seven features to be studied, three of which were covered by the patented
25 functionality. It is highly likely that study participants would have placed greater importance on a
26 feature like startup time if it were shown with six other features as opposed to 38 other features.
27 In the first scenario, participants in the study were artificially forced to focus on startup time even
28 if in the real world, startup time was unimportant to them. If Dr. Shugan had instead showed 39

1 different features to a study participant, then startup time (*i.e.*, the patented functionality) may
2 have been drowned out by the multitude of other features that are considered by real-world
3 consumers. In the real world, a consumer is faced with many features when making a decision to
4 purchase, not artificially focused on a particular feature. This problem is exacerbated by the fact
5 that important product features, such as battery life, WiFi, weight, and cellular network, all of
6 which were not covered by the patented functionalities, were purposely left out and replaced with
7 an arguably unimportant feature, voice dialing. Dr. Shugan had no reasonable criteria for
8 choosing the four non-patented features to test; instead, he picked a low number to force
9 participants to focus on the patented functionalities, warping what would have been their
10 real-world considerations.

11 In response to this concern, Oracle explains that it is not necessary in a conjoint analysis
12 to test every distinguishing feature that may matter to consumers because study participants are
13 told to hold all other features constant (Shugan Decl. ¶ 25, 38). That may be true in theory. But
14 here, the conjoint study's own irrational results shows that study participants did not hold all
15 other, non-tested features constant. Specifically, the results show that one quarter of all
16 participants preferred (9%), or were statistically indifferent between (16%), a smartphone costing
17 \$200 to a theoretically identical smartphone costing \$100 (Zimmer Decl. Ex F at 114, Shugan
18 Decl. ¶ 39; Shugan Reply Rep. 19). The likely explanation for this irrational result is that survey
19 respondents were not holding non-specified features constant and instead placing implicit
20 attributes on features such as price.

21 Oracle responds to this concern by arguing that irrational results, such as this, are
22 acceptable as long as those participants were consistent in their irrationality for each product
23 combination (Shugan Decl. ¶ 33):

24 When respondents implicitly attribute aspects of other attributes to
25 price or brand name, that is not inconsistent with holding constant
26 all other variables that are not included in the conjoint study. There
27 is no reason to believe that respondents who do enrich the value of
28 the price or brand with variables not included in the conjoint study
vary their evaluation of price or brand between the 16 choice sets
from which they choose their preferred smartphones. Therefore,
even if respondents enrich the value of price or brand, [Dr. Shugan
is] still able to isolate the incremental benefit of the features at issue
accurately. In other words, the meaning of price and brand may

1 differ slightly for some consumers, but each individual consumer
 2 can be expected to have a constant view of the meaning of price and
 brand. That is all that this survey requires.

3 This post-hoc explanation is not persuasive. There is no reason to think that study participants
 4 believed that a \$100 price increase for an iPhone has the same implicit attributes as a \$100 price
 5 increase for an Android or Blackberry. Moreover, it is likely that Dr. Shugan has created this
 6 problem for himself. If the conjoint analysis had been expanded to test more features that were
 7 important to smartphone buyers (instead of the four non-patented features selected for litigation
 8 purposes), then the study participants may not have placed implicit attributes on the limited
 9 number of features tested. The conjoint analysis' determination of market share is **STRICKEN**.

10 **C. Relative Preference Between Application Startup Time and**
 11 **Availability of Applications.**

12 The above-described flaw, however, is not fatal to the conjoint analysis' calculation of the
 13 relative preference between "application startup time" and "availability of applications." The
 14 study participants were unlikely to infer implicit attributes onto these two features. The
 15 calculated relative preference between these two features is sufficiently reliable for the purposes
 16 of *Daubert*. Thus, Dr. Cockburn's use of this relative preference for his apportionment
 17 calculation is not stricken. Mathematically, Dr. Cockburn requires this ratio of 2:1 in order to
 18 allocate the adjusted starting point of \$598 million (now \$561 million) between the patents in
 19 suit, copyrights in suit, and patents not in suit using an algebraic formula with only one variable
 20 to solve. Dr. Cockburn uses the following equation to solve for the value of the patents in suit
 (Rpt ¶ 414):

21
 22 Value of the Patents In Suit = $\frac{\$561 \text{ million}}{(1.5 + A)}$, where $A = \frac{1 - \% \text{ of patent portfolio attributable to patents in suit}}{\% \text{ of patent portfolio attributable to patents in suit}}$

23 And per the conjoint analysis, the value of the copyrights in suit are worth half the value of the
 24 patents in suit.

25 The reader may well reel in disbelief at this equation and wonder how the judge could let
 26 it be presented to the jury. While it is *sui generis* and will not be found in the textbooks, the
 27 equation is merely an arithmetical statement of the components previously allowed, such as the
 28 assumption that the 2006 value of the copyrights in suit would have been half the 2006 value of

1 the six patents in suit. The jury may well raise a skeptical brow over the seemingly convoluted
2 testimony but that is not the test for *Daubert*.

3 **4. ECONOMETRIC ANALYSIS.**

4 Throughout the reasonable royalty analysis for each patent and copyright in suit,
5 Dr. Cockburn's report cites his econometric analysis for an estimate of Android's increased
6 market share due to infringement (*see* Rpt Exhs. 6–11).

7 For his econometric analysis, Dr. Cockburn sampled 2010 and 2011 eBay auction data for
8 smartphones. This data included, for each auction, the maximum bid, equated to “willingness to
9 pay,” and the sales price. Aside from the eBay data, Dr. Cockburn also collected data about the
10 attributes of each auctioned smartphone, such as speed, battery life, and storage space. Using
11 both data sets, Dr. Cockburn conducted a regression analysis to predict “a consumer's willingness
12 to pay” based on a smartphone's features. From this, Dr. Cockburn calculated the decrease in a
13 consumer's willingness to pay for Android phones after removing the patented features (Rpt App.
14 C1–C5).

15 Using calculated decreases in willingness to pay, Dr. Cockburn extrapolated the predicted
16 decrease to Android's market share after removing the patented features. This was done by
17 looking at the data for bidders who place bids on multiple smartphone models and calculating
18 consumer surplus for each smartphone bid (Rpt App. C12–C13). By comparing each bidder's
19 newly calculated consumer surplus for a slower Android (*i.e.*, Android without the patented
20 features) and unchanged consumer surplus for other smartphones, Dr. Cockburn determined
21 whether that bidder would have purchased the slower Android, purchased another smartphone
22 they had bid on previously, or would not have purchased a smartphone at all.

23 Dr. Cockburn's determination of market-share impact was unreliable. Specifically, Dr.
24 Cockburn's calculation of Android market share using consumers' willingness to pay was
25 questionable. In his calculation of market-share change, Dr. Cockburn assumed that the sales
26 prices of Android smartphones sold on eBay would remain constant even though he had
27 previously determined that bidders would be less willing to pay for a slower Android.
28

1 Dr. Cockburn calculated market share by comparing the adjusted maximum bid
2 (willingness to pay for a slower Android) to the unadjusted price at which the Android
3 smartphone actually sold on eBay (sales price of the normal Android). The flaw in the analysis
4 was that the sales price should also have been adjusted because the sales price in Dr. Cockburn's
5 counterfactual was determined by the second highest bidder, whose willingness to pay would
6 have also decreased if Android were slower. Put another way, in the counterfactual with a slower
7 Android smartphone, if the winning bid was decreased because of a drop in consumers'
8 willingness to pay, then every bid should have been decreased, leading to a decrease in the sales
9 price of a slower Android smartphone. By not adjusting sales prices for Android, Dr. Cockburn
10 likely overestimated the decrease in Android market share and thus, overestimated the revenue
11 impact to Google of an Android smartphone without the patented features.

12 Oracle responds by explaining that for most Android smartphones, Google had no
13 influence over the price at which OEMs sold phones or the extent to which carriers subsidized
14 them (Cockburn Decl. ¶¶ 13–16). This explanation is not persuasive. It is unclear how prices set
15 by OEMs and carriers for new Android phones would impact the sales price for eBay-auctioned
16 Android phones. Dr. Cockburn does not contend in his report that OEMs and wireless carriers set
17 minimum-bid prices for all or most of the eBay Android smartphones sold. The sales prices for
18 eBay-auctioned Android smartphones were set by the winning bid. Indeed, Oracle's explanation
19 highlights the disconnect between Dr. Cockburn's methodology and real-world predictions.

20 Thus, Dr. Cockburn's econometric calculation of the change in Android market share is
21 **STRICKEN.**

22 **5. POTENTIAL ISSUES NOT ADDRESSED BY THE PARTIES.**

23 At the hearing, the undersigned judge raised the question of whether Dr. Cockburn's
24 report provides a way for the jury to calculate damages in the event that Oracle prevails on fewer
25 than all patents in suit. Now the only two remaining patents in suit are the '520 and the '104
26 patents. The Court understands how Dr. Cockburn's group-and-value methodology could arrive
27 at a value for the '104 patent. But in light of the rulings in this order, it seems to the Court that
28 there is no remaining methodology to place a value on the '520 patent. While this was briefly

1 discussed at the hearing, the parties shall also address how this affects, if at all, the copyright
2 allocation, and how the one-half formula will be presented to the jury if Oracle only asserts one-
3 third of the original denominator, the *three* patents in suit. By **NOON ON MARCH 19**, each side
4 shall submit ten-page statements on this issue.

5 The undersigned judge also raised the question of whether the 2006 negotiations, on
6 which Dr. Cockburn's hypothetical negotiation inquiry is based, entailed a fully paid-up license
7 or only a three-year term license for the intellectual property at issue. Dr. Cockburn does not
8 opine on this issue in his report. At the hearing, the parties disagreed with each other on the
9 answer to this question. The Court itself believes this will be important for determining
10 injunctive relief and ongoing royalties. However, since neither party has raised the issue, it will
11 not delay trial, and both sides must take their chances on this one at trial.

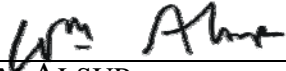
12 **CONCLUSION**

13 For the reasons stated, the independent-significance approach is **STRICKEN**. The
14 econometric analysis is **STRICKEN**. The conjoint analysis' determination of market share is
15 **STRICKEN** in both Dr. Shugan's and Dr. Cockburn's reports. However, the conjoint analysis'
16 determination of relative importance between application startup time and availability of
17 applications is not stricken. The "upper bound" calculation in the group-and-value approach is
18 **STRICKEN**. The "lower bound" calculation in the group-and-value approach shall be adjusted by
19 deducting \$37 million for the value of the unasserted copyrights from the adjusted starting point
20 of \$598 million. Therefore, \$561 million shall be the total value of the copyrights in suit and 569
21 patents in Sun's Java mobile patent portfolio. Both parties shall please advise the Court how Dr.
22 Cockburn's report could calculate a reasonable royalty for each individual patent in light of the
23 items stricken by this order. The parties shall submit ten-page statements on this by **NOON ON**
24 **MARCH 19**.

1 In allowing most of the study to be presented to the jury, the Court merely holds that those
2 passages pass a minimum threshold without necessarily suggesting that the methods used are
3 persuasive or the best method to address the problem. No expert witness shall say in the jury's
4 presence that the Court has (or has not) approved any approach.

5
6 **IT IS SO ORDERED.**

7
8 Dated: March 13, 2012.



WILLIAM ALSUP
UNITED STATES DISTRICT JUDGE

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