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20 UNITED STATES DISTRICT COURT  
21 NORTHERN DISTRICT OF CALIFORNIA  
22 SAN JOSE DIVISION

23 ANGEL FRALEY; PAUL WANG; SUSAN  
24 MAINZER; JAMES H. DUVAL, a minor, by  
25 and through JAMES DUVAL, as Guardian ad  
26 Litem; and W. T., a minor, by and through  
27 RUSSELL TAIT, as Guardian ad Litem;  
28 individually and on behalf of all others similarly  
situated,

Plaintiffs,

v.

FACEBOOK, INC., a corporation; and DOES 1-100,

Defendants.

Case No. CV 11-01726 LHK PSG

**DECLARATION OF FERNANDO TORRES IN SUPPORT OF PLAINTIFFS' MOTION FOR CLASS CERTIFICATION**

Date: May 24, 2012

Time: 1:30 p.m.

Courtroom: 8

Judge: Hon. Lucy H. Koh

Trial Date: December 3, 2012

1 1. I, FERNANDO TORRES, declare and state as follows:

2 2. I have been retained as an expert by Plaintiffs' attorney to consult with them  
3 concerning the factual issues presented in the above case.

4 3. I am a professional economist in the State of California and have over 30 years'  
5 experience in applied and theoretical economics. In the course of this experience, I have been  
6 a consultant, a professor, and a business manager. Both my undergraduate and post-graduate  
7 degrees are in economics, the latter with a concentration in econometrics. Since at least 2004,  
8 I have specialized in the analysis and valuation of intellectual property and intangible assets.  
9 I am a member and Chief Economist of IPmetrics LLC, an intellectual property consulting  
10 firm. Attached hereto is a copy of my most current curriculum vitae setting forth in detail my  
11 qualifications and experience.

12 4. Additionally, I have served as a consultant on numerous cases involving  
13 intellectual property infringement issues, including rights of publicity. I have trial and  
14 deposition experience as an expert witness representing both plaintiffs and defendants. I have  
15 experience in complex commercial litigation cases nationally. I currently consult with and  
16 have consulted with clients in California, New York, Texas, Colorado, and Florida.

17 5. In connection with my work in this case, I have read, reviewed, and analyzed the  
18 following documents.

- 19 a. Plaintiff's Second Amended Complaint;
- 20 b. Order Granting In Part And Denying In Part Defendant's Motion To Dismiss;
- 21 c. Plaintiff's Statement of Facts;
- 22 d. Depositions of Chris Plambeck, John Hegeman and Gokul Rajaram;
- 23 e. Deposition Exhibits 32, 48, 326, 323, 366, 376, 448, 451, 488, 524, 581, 583,  
24 586, 588, 589, 592, 596, 612, 618, 623, 654, 682, 684, and 685;
- 25 f. Additional Bates Stamped Documents FB\_FRA 1037, 1138-1140, 1879-1881,  
26 69757, 69758, 99715-99719, 99757-8, 128219-20.

27 6. Furthermore, in the course of my work in this case, I have reviewed and relied upon  
28 the following authoritative references:

- a. "Facebook Ads and Sponsored Stories" Facebook, 2011;

- b. J. Brown, A.J. Broderick, and N. Lee, "Word of mouth communication within online communities: Conceptualizing the online social network." Journal of Interactive Marketing, Elsevier, Vol. 21, No. 3, 2007, pp 2-20;
- c. R. Hof, "Facebook's New Advertising Model: You" Forbes, Dec. 5, 2011;
- d. A. Lipsman, G. Mudd, Mike Rich, and S. Bruich, "The Power of Like. How brands reach and influence fans through social media marketing," a White Paper collaboration between comScore and Facebook, July 26, 2011;
- e. J. Kistner, "Facebook's Best Kept Secret: Building Conversions And Revenue With Ads For Fans" whitepaper, 2011, Webtrends, Inc.

7. These are the types of materials experts in my field typically rely on when completing assignments such as mine in this case.

8. After reviewing and analyzing the material provided to me, and after conducting research, I have come to the following findings and conclusions:

- a. From an economic perspective, there is measurable commercial value in one's identity, specifically within a social network. The scale of this market value is smaller for a non-celebrity than for a well-known public figure, but the value is measurable due to the fact that friend-endorsed ads have a higher fair market value for advertisers than standard ads that do not feature friend-endorsements.
- b. The higher market value of Sponsored Stories Ads is based on the measurably higher effectiveness of these ads when compared with regular, non-friend-endorsement ads. The reasons for the difference in effectiveness are many, but they mostly reflect the fact that these ads have a social dimension; the expressed endorsement of a person with whom the targeted consumer is not only familiar but connected, in short, a Facebook "friend."
- c. The social connection characteristic of the Sponsored Stories ads is what supports the value of a regular person's identity for endorsement advertising purposes among their network of friends, in the same way in which fame and mass appeal are the central support of celebrity endorsement values in the economy at large.

- 1 d. Ad effectiveness is measurable and it is customarily quantified and monitored  
2 using well-established methods, which are common place in the online  
3 advertising industry.
- 4 e. Directly, an online ad is more effective if it is clicked-on by the consumers to  
5 whom it is shown with a higher frequency than standard ads. In contrast with the  
6 passive publication of a conventional display ad, a click on an ad represents to  
7 the advertiser that the targeted consumer:
- 8 i. Saw the ad (an "Impression"),
  - 9 ii. Presumably read the marketing message contained in the ad, and
  - 10 iii. Was motivated to engage further in the desired marketing  
11 communication, such as a special offer, further information, bonus, etc.
- 12 f. Thus, effectiveness is primarily measured by the click-through rate ("CTR") of  
13 the ad, which is a percentage that indicates the average number of times the ad is  
14 clicked-on per one-hundred Impressions during a given time period.
- 15 g. With a higher CTR, there is a higher volume of potential customers engaging in  
16 the advertiser's desired activities, i.e., the goal of the ad, and a higher likelihood  
17 of consummating a sale and achieving a return on the advertising investment.
- 18 h. The CTR of an ad is a key performance indicator of online advertising. This  
19 advertising medium is distinct in that advertisers have the option of only paying  
20 for the ads placed that have been clicked-on, as opposed to paying for the  
21 overall number of impressions, regardless of the effectiveness of the ad, as has  
22 predominantly been the case in print, broadcast, and outdoor advertising.
- 23 i. For a given cost and number of impressions, advertisers would seek out and  
24 allocate more of their budget for an ad with a higher CTR because that ad  
25 delivers a higher number of potential customers and, therefore, higher potential  
26 sales and profits.
- 27 j. Sponsored Stories ads are more effective than standard ads when served to  
28 friends of a social network member because of the use of the identity and  
apparent endorsement by Plaintiffs in this type of ad. This is due to the  
combination of the fact that these ads have been shown to have higher CTRs

1 with the fact that the potential customer clicking on the ad is expected to have a  
2 higher likelihood of becoming a “Fan” of the advertiser’s brand and, eventually,  
3 become a customer.

4 k. While in the course of normal marketing activities using Facebook, advertisers  
5 aim at attracting “Fans” to their Facebook pages and/or by clicking the “Like”  
6 icon, since this type of Facebook member is most likely to engage with the  
7 brand and become a regular customer. The social attributes made available by  
8 Sponsored Stories ads allow advertisers to leverage the ability of this type of  
9 Fans to influence their social network: “Friends of Fans.” In brief, Friends of  
10 Fans represent a much larger audience for ads and can receive social media  
11 Impressions (ads), by way of their friends. When Facebook delivers ads to the  
12 friends of members in connection with an advertisement, these targeted  
13 consumers are more likely to become Fans of the brands themselves, or click the  
14 “Like” icon, because they see their friends “Like” or are connected with a brand.  
15 This behavior is directly related to the well-established marketing effectiveness  
16 of “word-of-mouth” in the context of a digital social network.

17 l. Facebook management has touted the increased effectiveness of advertising that  
18 leverages social network connections. In Facebook’s CEO’s own words:  
19 “People influence people. Nothing influences people more than a  
20 recommendation from a trusted friend. A trusted referral influences people more  
21 than the best broadcast message. A trusted referral is the Holy Grail of  
22 advertising.” (Mark Zuckerberg, Facebook CEO Claire Hoffman, *The Battle for*  
23 *Facebook*, Rolling Stone, Sept. 15, 2010. Exhibit 654).

24 m. Online advertising agencies also recognize the value of Sponsored Stories ads to  
25 their clients. They do this by highlighting how these ads give advertisers the  
26 ability to acquire Facebook Fans at lower costs because of the interaction of two  
27 factors:

- 28 i. A higher CTR leading to less expensive clicks<sup>1</sup>
- ii. A higher conversion rate from those clicks

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<sup>1</sup> This is mostly applicable to ad campaigns which bid on an impression basis (CPM bids).

- 1 n. Evidence of the increased effectiveness of Sponsored Stories ads through these  
2 effects is found in the record. For example, in reference to a comparison for a  
3 specific game play campaign, Facebook internal documents show that friends of  
4 fans that click on the sponsored story ad are more likely to convert to customers  
5 leading to a ■% higher conversion rate for the same amount of ad expenditure.  
6 (Exhibit 583). In other instances, the relative effectiveness of Sponsored Stories  
7 ads is shown in specific tests to be significant in terms of higher CTRs, in the  
8 order of a CTR of ■% for the control ad contrasting with a CTR of ■%  
9 for the Sponsored Stories ad (a four-fold increase). (Exhibit 451).
- 10 o. In analyzing the results of comparisons measuring the effectiveness of the  
11 Sponsored Stories ads as a product, internal Facebook documents clearly  
12 indicate the interaction of Facebook members is broader than the direct higher  
13 CTR of the ads. Specifically, Facebook's internal interpretation is that  
14 Sponsored Stories ads lead to interactions with brands which are ■ times  
15 higher than other ads, because these ads are "...putting people at the center of  
16 marketing. Because you see the story in the context of your friend, it is more  
17 likely you will see and engage with the story." (Internal E-mail from Brad  
18 Smallwood of Facebook's marketing department. Exhibit 682). Therefore, the  
19 effect of using the identity of a Facebook friend in these ads increases the  
20 effectiveness of the ad and this is reflected in a higher CTR.
- 21 p. Consequently, the increased revenue enjoyed by Facebook as a result of the sale  
22 of Sponsored Stories ads is due to the use of the identity and apparent  
23 endorsement by Plaintiffs in this type of ad; this differential directly measures  
24 the commercial value of the Member's identity.
- 25 q. The additional or incremental revenue Facebook enjoys (which is equivalent to  
26 incremental profit<sup>2</sup>) as a result of its sale of Sponsored Stories ads represents the  
27 maximum total amount the Class Members would have been able to negotiate as  
28

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<sup>2</sup> I have seen no evidence to suggest that there would be incremental costs to serving one type of ad over another.



1 compensation for the use of their likenesses in Sponsored Stories ads, given the  
2 opportunity.

- 3 r. If an advertising medium such as Facebook can offer an ad product that can  
4 guarantee a higher CTR for advertisers, they will have a strong incentive to  
5 allocate more advertising spending to that particular type of ad and, to the extent  
6 competition for placement ensues, advertisers will need to increase their bids  
7 and absorb a higher cost paid to Facebook. Therefore, the fact that the  
8 Sponsored Stories ads are more effective will tend to create an upward pressure  
9 on competitive bid offers, leading to higher costs per click (“CPC”) for  
10 advertisers and increased revenue and profits for Facebook.
- 11 s. As there may be additional benefits to Facebook and advertisers from the higher  
12 effectiveness of Sponsored Stories ads, a calculation based on past average  
13 effectiveness is a conservative approach to calculating the incremental value of  
14 this type of ad.
- 15 t. Because Facebook keeps all the necessary data [REDACTED]  
16 [REDACTED]), based upon the number of ad  
17 Impressions in which a member appeared, the calculation of the distribution to  
18 each user is not only possible, but relatively straightforward.
- 19 u. Conventional unendorsed ads have been shown to have CTRs that are a fraction  
20 of the CTR of Sponsored Stories ads. This fraction has been calculated by  
21 Facebook in several experimental tests and is typically in the range between  
22 [REDACTED]<sup>3</sup> For the formulation of the damages quantification equation, this  
23 fraction will be referred to as the “Base Revenue Factor” and denoted by the  
24 letter “F.” The equation for determining Plaintiffs’ damages is, for each  
25 impression, the result of multiplying the ad’s CPC times the Sponsored Story’s  
26 CTR (“ssCTR”)<sup>4</sup> and then multiplied by (1 – F) which represents the fraction of

26 <sup>3</sup> In promoting the adoption of Sponsored Stories, the ratio cited is typically the reciprocal of  
27 this fraction, i.e., the multiple number of “times” the CTR increases for Sponsored Stories ads  
28 relative to a control ad or conventional ads, such as the above-referenced [REDACTED] multiple.

<sup>4</sup> This portion calculates Facebook’s revenue from each Sponsored Stories ad impression,

1 that revenue that is not attributable to conventional ad effectiveness:  
2  $CPC \times ssCTR \times (1 - F)$ .

3 v. Using the Base Revenue Factor (comparing the CTR from a hypothetical  
4 Standard ad and the CTR from the Sponsored Stories ad which was actually  
5 run), then multiplying it by the monies (revenue) actually charged for the  
6 campaign by Facebook, results in a determination of the revenue which  
7 Facebook would have gotten had it served "Standard Ads" (that is, a Facebook  
8 Ad, or other type of non friend-endorsed ad) instead of a Sponsored Stories ads.

9 w. Derivation of the formula.

10 1. For each ad served (Impression), control, benchmark, or Standard Ad,  
11 revenue (AR) can be expressed as the result of the cost per click (CPC)  
12 multiplied by the corresponding click-through-rate (CTR):

$$13 \quad AR = CPC \times CTR$$

14 2. For each ad served (Impression), Sponsored Stories Ad Revenue (ssAR):  
15  $ssAR = ssCPC \times ssCTR$

16 3. Incremental Revenue is defined as:  $IR = ssAR - AR$

17 4. Assuming, as in most Facebook tests, that the CPC bid is the same for  
18 both types of ads:  $CPC = ssCPC$  (I have mentioned above reasons  
19  $ssCPC$  may grow higher).

$$20 \quad 5. IR = CPC \times ssCTR - CPC \times CTR$$

21 6. Which is simplified to:  $IR = CPC \times (ssCTR - CTR)$

22 7. Based on studies,  $CTR = ssCTR \times F$ , where  $F$  is the fraction of the SS  
23 effectiveness that is achievable with a marketplace ad.<sup>5</sup>

24 8. Substituting in (6):  $IR = CPC \times (ssCTR - ssCTR \times F)$

25 9. Which yields the formula set out above:  $IR = CPC \times ssCTR \times (1 - F)$

26 a. If  $F = 1$ , the Incremental Revenue = 0

27 b. If  $F = 0.3$ , then Incremental Revenue =  $CPC \times ssCTR \times 0.7$

28 c. If  $F = 0.5$ , then Incremental Revenue =  $CPC \times ssCTR \times 0.5$

<sup>5</sup> This fraction has often found to be ■ or ■, corresponding to the assertion that Sponsored Stories ads are twice as effective as standard ads.



1 x. This formula above expresses the incremental revenue (IR) in a single  
 2 Sponsored Story ad impression. The Base Revenue Factor (F) can also be used  
 3 to determine the Incremental Revenue received by Facebook related to the  
 4 running of an entire Sponsored Story ad campaign.

5 1. Incremental Revenue of an entire campaign is defined as the  
 6 advertising revenue for a Sponsored Story ad campaign less the  
 7 advertising revenue attributable to the benchmark (ie: non-  
 8 Sponsored Stories) campaign, (ARC):

$$9 \text{ IRC} = \text{ssARC} - \text{ARC}$$

10 2. Where:  $\text{ssARC} \times F = \text{ARC}$

11 3. Substituting for ARC:

$$12 \text{ IRC} = \text{ssARC} - (\text{ssARC} \times F)$$

13 4. Which can be simplified to:

$$14 \text{ IRC} = \text{ssARC} \times (1 - F)$$

15 y. Example based on █████ Sponsored Story Performance data. (Testing for █████  
 16 Sponsored Stories ads performance, Exhibit 448).

17 1. The CTR for these Sponsored Stories ads was .104%, thus:

$$18 \text{ ssCTR} = 0.00104$$

19 2. The CTR for the unendorsed control ads was .025%, thus:

$$20 \text{ CTR} = 0.00025$$

21 3. The F score is the quotient of .025% and .104%, or .24, thus:

$$22 \text{ F} = 0.00025 / 0.00104 = 0.24$$

23 4. The Cost per Click for the Sponsored Stories ads was \$0.17, thus:

$$24 \text{ CPC} = \$0.17$$

25 5. The Incremental Revenue per impression is represented as:

$$26 0.17 \times .00104 \times (1 - 0.24)$$

27 6. The result of this equation is:

$$28 \text{ IR} = 0.00013437$$

7. The Sponsored Stories ads were displayed, 82,636,801 times  
 between January 26 and March 07, 2011, thus:

Impressions: 82,636,801 (for the prescribed time period)

8. The Incremental Revenue = \$11,103.74

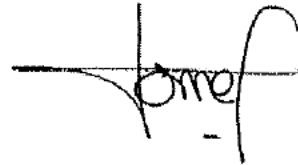
9. The Sponsored Stories ads Total Revenue = \$14,504.87

10. Incremental Revenue ratio = 76.6%<sup>6</sup>

11. Applying this sample ratio to the total 2011 Sponsored Stories ad revenue bidden as CPC (\$61,510,066):<sup>7</sup>

IR = \$47,087,066.

9. I declare under the penalty of perjury and under the laws of the State of California that the forgoing is true and correct and based upon my personal knowledge and/or professional opinions, and that if called upon to testify, I could verify the accuracy of the same. This document was executed in the city of San Diego, California on March 28, 2012.



By: \_\_\_\_\_  
Fernando Torres, MSc

<sup>6</sup> Incremental revenue as a proportion of Sponsored Stories ad revenue.

<sup>7</sup> Information responsive to Document Request No. 7.1. Ads where the bids are designed by impression (Cost per thousand impressions, or CPM) are [REDACTED]