Robert A. Mittelstaedt #60359
ramittelstaedt@jonesday.com
Craig E. Stewart #129530
cestewart@jonesday.com
David C. Kiernan #215335
dkiernan@jonesday.com
JONES DAY
555 California Street, 26th Floor
San Francisco, CA 94104
Telephone: (415) 626-3939
Facsimile: (415) 875-5700

Attorneys for Defendant
APPLE INC.

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

OAKLAND DIVISION

THE APPLE iPOD iTUNES ANTITRUST LITIGATION

This Document Relates To:

ALL ACTIONS

Lead Case No. C 05-00037 YGR
[CLASS ACTION]

DEFENDANT'S NOTICE OF MOTION AND MOTION FOR SUMMARY JUDGMENT AND TO EXCLUDE EXPERT TESTIMONY OF ROGER G. NOLL

Date: February 18, 2014
Time: 2:00 PM
Courtroom: 5

[Public Version - Redacted]

TABLE OF CONTENTS

Page

TABLE OF AUTHORITIES

Page(s)

Cases

Rules

Treatises

NOTICE OF MOTION AND MOTION

PLEASE TAKE NOTICE that on February 18, 2014 at 2:00 p.m. defendant Apple Inc. will and hereby does move for summary judgment and to exclude the expert testimony of Roger G. Noll.

RELIEF SOUGHT

Apple requests that summary judgment be entered in Apple's favor on all claims and that the testimony of plaintiffs' expert, Roger G. Noll, be excluded.

MEMORANDUM OF POINTS AND AUTHORITIES

INTRODUCTION

This motion seeks to resolve the last remaining claim in this long-running antitrust lawsuit. Plaintiffs' principal claims have already been rejected. The record, with fact and expert discovery now complete, indisputably establishes that plaintiffs cannot prove their remaining, implausible assertion that an Apple software update in 2006 increased iPod prices.

Plaintiffs' claim relies on an incoherent chain of purported events. Plaintiffs' theory is that the 2006 update, which prevented digital music from one insignificant source of music (RealNetworks music store (RMS)) from being played directly on iPods, forced RMS customers to buy music from Apple instead of RMS to play on their iPods, and they bought so much music from Apple that if and when they needed to replace their iPods, they were locked in to buying an iPod rather than switching to a competing device as they supposedly would have done if only they had continued to buy music from RMS. Plaintiffs theorize that this chain of events happened so often that demand for iPods increased to such an extent that Apple was able to, and did, charge higher prices for iPods than it otherwise would have.

Apart from the implausibility of this theoretical chain, plaintiffs have no proof of any part of it. They have no evidence that anyone, much less a sizeable group of consumers, switched from RMS to Apple's music store as a result of the update, or that if anyone did, the incremental amount of music they bought from Apple forced them to buy a replacement iPod even though they preferred a competing device. The named plaintiffs do not fit that description. They have identified no one who does. And they have not offered any survey of consumers to support their

theory. Nor do they have any evidence that Apple's pricing of iPods turned on this purported chain of events.

Indeed, the record evidence refutes key parts of plaintiffs' theory. As their expert admitted, RealNetworks was a minor player, with minimal sales at the time of Apple's software update. [redacted] Thus, the non-expert evidence establishes that summary judgment is warranted because plaintiffs cannot show any genuine dispute of material fact that Apple raised its iPod prices due to the update.

Plaintiffs' economist, Dr. Noll, and his regression model cannot salvage their claim. The regression purports to tease out a supposed incremental price effect of the 2006 update from the multitude of factors that determine iPod pricing. But the regression is riddled with fundamental errors and inconsistencies that render it unreliable and unable to support any finding of impact. As shown below, the model is based on unsupported assumptions and produces results that are irreconcilable with indisputable real-world facts. And Dr. Noll miscalculates the standard errors to contend that his results are statistically significant. When the standard errors are properly calculated, they show that the regression results are not significantly different from zero—which is the expected result given the lack of any evidence that the 2006 update had any impact on demand for iPods or that Apple considered it in determining iPod prices.

For these reasons, summary judgment should be granted in favor of Apple, and Dr. Noll's report and testimony should be excluded. Summary judgment should also be granted because Dr. Noll has not come close to conducting the required analysis to support his opinions regarding the relevant antitrust markets and plaintiffs have no other evidence to support their market definition. Defining a proper relevant market is required for a valid claim of monopolization. But plaintiffs and Dr. Noll again rely on *ipse dixit*, unsupported by relevant analysis.

BACKGROUND

A. Launch of the iTunes Store.

Apple launched the iTunes Store ("iTS") in April 2003. As the then-head of the

Department of Justice Antitrust Division observed in 2006, the iTS "solved a problem that some observers . . . predicted might never be solved: how to create a consumer friendly, yet legal and profitable, system for downloading music and other entertainment from the Internet." Declaration of Amir Amiri ("Amiri Decl.") filed herewith, Ex. 1 at p. 6. In the years preceding the iTS's opening, music piracy had been rampant, with consumers using illegal peer-to-peer file sharing sites like Napster to download music for free. The scale of this piracy was enormous, with as many as 10,000 files being shared per second on Napster. *See generally A&M Records, Inc. v. Napster, Inc.,* 114 F. Supp. 2d 896, 902 (N.D. Cal. 2000), *aff'd* 239 F.3d 1004 (9th Cir. 2001).

The iTS was developed as a legal alternative to these illegal file-sharing sites. To succeed, Apple had to (1) make the store so attractive to consumers and so easy to use that it could compete with free music services, and (2) satisfy the recording industry's concerns that licensed online distribution would lead to more piracy and theft and further erode the labels' sales. ECF No. 538, ¶¶ 3-5; ECF No. 470, Ex. 3, 33:20-22.

Between November 2002 and April 2003, Apple and the major record labels (Sony, BMG, EMI, Warner, and Universal) entered agreements that permitted Apple to distribute music through the iTS. ECF No. 538, ¶ 5. [redacted]

As plaintiffs and their expert admit, the iTS was "procompetitive" and a "huge benefit" with "enormous advantages" to consumers. ECF No. 176, Ex. 21 at 105:8-20; ECF No. 322, ¶¶ 14-15, 40. Fortune Magazine named the iTS its 2003 "product of the year," observing that "[w]ith the success of its iTunes Music Store, Apple is almost single-handedly dragging the music industry, kicking and screaming, toward a better future." Amiri Decl, Ex. 2.

The labels continued to demand that all licensees of their music use DRM for several years after the iTS was launched. The first major label to drop the requirement was EMI, which permitted Apple to sell music without DRM beginning in early 2007. *See Id*., Ex. 3 at Ex. 1. By

early 2008, all of the major labels permitted Amazon to sell their music without DRM. *Id.* Finally, all the major labels dropped the DRM requirement for Apple in early 2009. In January 2009, Apple announced that about 8 million songs (or 80% of the music sold on the iTS) would be available DRM-free from the iTS. *Id.* All songs on the iTS were available DRM-free beginning in March 2009. *Id.*

B. Plaintiffs' Original Theory.

Plaintiffs brought this suit in 2005—when the labels were still requiring Apple and others to use DRM—alleging that Apple's use of FairPlay was an antitrust violation. They asserted that, as a consequence of Apple's use of its own proprietary system, music purchased from the iTS was directly playable on iPods but not on music players made by other companies. (iTS music could be "indirectly" played on competing devices by burning the music to a CD and importing, or "ripping," it to a computer.) They argued that Apple had thereby locked iTS purchasers into buying iPods rather than competing players in the sense that their "switching costs" to change to a non-iPod device would be greater.

Rejecting that claim, this Court held that it was lawful for Apple to adopt its own DRM, even if the effect was to make Apple's products incompatible with competitors' products. ECF No. 303, pp. 2, 10; ECF No. 274, p. 10.

C. The Amended Consolidated Complaint.

Plaintiffs responded by filing an amended complaint (ECF No. 322) with a new theory. Having failed in challenging Apple's decision to use a proprietary DRM, they now challenged later updates to Apple's software that they claim excluded competitors. ECF No. 322, ¶ 52.

1. iTunes 4.7.

The amended complaint focused on a feature in iTunes 4.7 issued in October 2004 to enhance the FairPlay encryption system. The update fixed a vulnerability in FairPlay that had been exploited by hacks that stripped DRM from iTS music. [redacted] Apple did so by issuing iTunes 4.7, which changed the FairPlay

encryption method and disabled the hacks.

Plaintiffs alleged that iTunes 4.7 also unlawfully shut down RealNetworks' "Harmony" technology. As plaintiffs explained it, RealNetworks had "analyzed the firmware within the iPod" and "discern[ed]" Apple's "software code." ECF No. 322, ¶ 53. By cracking FairPlay, RealNetworks devised a way to make music purchased from its website mimic Apple's then-existing encryption scheme and make it falsely appear to the iPod that the RealNetworks-protected music was actually iTS music protected by FairPlay. ECF No. 538, ¶¶ 50-54. RealNetworks released this "Harmony" technology in July 2004 and promoted it by selling Harmony music at half-price (49 cents a song) for three weeks. When Apple released iTunes 4.7, the update disabled Harmony as to the iPods with the update, because Harmony mimicked the previous encryption method, not the updated one.

This Court (Ware, J.,) granted summary judgment to Apple on plaintiffs' challenge to iTunes 4.7. ECF No. 627. The Court ruled that iTunes 4.7 was a valid product improvement because—notwithstanding any effect it had on Harmony—it restored FairPlay's integrity, [redacted] *Id.* at 8.

2. The Keybag Verification Code in iTunes 7.0

Plaintiffs also challenged an aspect of the iTunes 7.0 update issued in September 2006. That update included a number of enhancements. For example, it enabled the sale of movies for the first time from the iTS, supported video at four times higher resolution than the previous version, and introduced Apple's distinctive "Cover Flow" method to browse through content on the iPod. *See* Amiri Decl., Ex. 4 at Ex. 6. iTunes 7.0 [redacted]

[1] [redacted]

[redacted]

[redacted] It also made the DRM more secure by eliminating one avenue of attack. *Id*.

As they did in challenging iTunes 4.7, plaintiffs alleged that the [redacted] was anticompetitive because it prevented music from other music stores from directly playing on certain iPods. In particular, plaintiffs argue that the updates again disabled RealNetworks' Harmony, which RealNetworks had re-launched in April 2005 after again cracking Apple's DRM software.

Judge Ware denied Apple's motion for summary judgment on this issue, finding that there were issues of fact regarding whether the [redacted] was truly a product improvement. ECF No. 627, pp. 11-12.[2] Apple did not seek summary judgment on lack of impact or competitive injury at the time because discovery was still ongoing. This Court's scheduling orders explicitly preserve Apple's right to seek summary judgment on that issue after the completion of discovery.

D. Plaintiffs' Theory of Impact.

Plaintiffs' theory of antitrust impact is that, by disabling Harmony, the [redacted] resulted in some consumers purchasing more music from iTS than they otherwise would have. They assert this increased the switching costs of those consumers to the point that they were locked in to buying an iPod when they next purchased a digital music player. According to plaintiffs, that increased demand for iPods led Apple to raise iPod prices. At the same time, they say, other customers were locked out of buying iPods after the [redacted] because they had large libraries of Harmony music that would no longer play on the iPods on which the [redacted] was implemented. According to plaintiffs, this lock-out led to higher prices because Apple no longer had the incentive to reduce prices to attract these customers. Amiri Decl., Ex. 8 at p. 7.

As shown below, plaintiffs offer no documentary evidence or testimony from percipient witnesses to establish any of the facts necessary to support this theory or to refute the record

---

[2] In addition to iTunes 7.0, plaintiffs' experts also describe iTunes 7.4, an update released in September 2007, as preventing Harmony from working on iPods. But they do not present a separate impact or damages analysis related to that update. Instead, their position is that, because the [redacted] had already disabled Harmony as of September 2006, iTunes 7.4 had no additional adverse effect on iPod prices.

evidence contradicting it. Instead, they rely solely on a regression model proffered by their economist, Roger Noll. The regression purports to perform a before and after analysis, comparing iPod prices before the [redacted] with those after and, after supposedly controlling for other factors that influence iPod prices, finding the amount of iPod prices that plaintiffs say is attributable to the [redacted]

ARGUMENT

I. LEGAL STANDARD.

A. Summary Judgment.

Summary judgment is proper when "there is no genuine issue as to any material fact and . . . the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(c)(2). Courts frequently grant summary judgment in antitrust cases when the plaintiff lacks admissible evidence that the challenged conduct caused antitrust injury—including where, as here, the plaintiff seeks to prove injury though expert economic evidence that the court finds inadmissible.[3]

[3] *See e.g., In re Se. Milk Antitrust Litig.*, No. 08-MD-1000, 2012 WL 1032797, at *4–6 (E.D. Tenn. Mar. 27, 2012) (granting summary judgment where the expert's model could not identify price changes caused by alleged anti-competitive conduct); *In re eBay Seller Antitrust Litig.*, 433 Fed. Appx. 504, 506 (9th Cir. 2011) (affirming summary judgment where expert's econometric analysis was inadequate to support claim of antitrust injury); *Concord Boat Corp. v. Brunswick Corp.*, 207 F.3d 1039, 1054-58, 1063 (8th Cir. 2000) (finding that expert's opinions on injury should have been excluded and remanding for entry of judgment).

B. Exclusion of Expert Testimony.

Rule 702 permits expert testimony that "will help the trier of fact to understand the evidence or to determine a fact in issue" if the testimony is "based on sufficient facts or data," "is the product of reliable principles and methods," and "the expert has reliably applied the principles and methods to the facts of the case." Fed. R. Evid. 702. As "gatekeeper," the Court must ensure that expert testimony "rests on a reliable foundation and is relevant to the task at hand." *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 597 (1993). "Maintaining *Daubert's* standards is particularly important considering the aura of authority experts often exude, which can lead juries to give more weight to their testimony." *Mukhtar v. Cal. State Univ., Hayward*, 299 F.3d 1053, 1063-64 (9th Cir. 2002) *amended*, 319 F.3d 1073 (9th Cir. 2003). Litigants should not be permitted to get to trial simply by attempting to "dazzle the courtroom with graphs and tables." *In re Graphics Processing Units Antitrust Litig.*, 253 F.R.D. 478, 491-92 (N.D. Cal. 2008).

Reliable expert testimony is grounded "in the methods and procedures of science," not "subjective belief or unsupported speculation." *Daubert*, 509 U.S. at 590. While the focus is on the expert's underlying methodology, "conclusions and methodology are not entirely distinct from one another," and "[a] court may conclude that there is simply too great an analytical gap between the data and the opinion proffered." *GE v. Joiner*, 522 U.S. 136, 146 (1997). Relevant expert testimony "'fit[s]'" the facts of the case and "logically advances a material aspect of the proposing party's case." *Daubert v. Merrell Dow Pharms.*, 43 F.3d 1311, 1315 (9th Cir. 1995).

II. SUMMARY JUDGMENT SHOULD BE GRANTED BECAUSE PLAINTIFFS CANNOT SHOW ANY GENUINE FACTUAL ISSUE REGARDING IMPACT OR DAMAGES.

"[P]roof of injury is an essential substantive element" of an antitrust claim. *Kline v. Coldwell, Banker & Co.*, 508 F.2d 226, 233 (9th Cir. 1974); *Rebel Oil Co. v. Atl. Richfield Co.*, 51 F.3d 1421, 1433 (9th Cir. 1995) ("causal antitrust injury[] is an element of all antitrust suits"). Lack of evidence of injury caused by the challenged conduct is "fatal to the merits of any antitrust claim." *Argus Inc. v. Eastman Kodak Co.*, 801 F.2d 38, 41 (2d Cir. 1986). That is the situation here. Plaintiffs' claim of impact is unsupported by any record facts.

For the alleged impact to have occurred, RealNetworks must have been selling Harmony music to iPod owners (or potential iPod purchasers) in sufficient quantities in September 2006 that a drop in those sales would have affected iPod demand so much that Apple would raise iPod prices. That, in turn, requires that there were consumers who, because of the update, became either (1) locked in by their increased iTS purchases and thus forced to buy an iPod when they otherwise would have bought a competing player, or (2) locked out by their Harmony purchases and thus prevented from purchasing any iPod with [redacted] on it. And the claim requires that Apple became aware of these customers (and how many there were) and took them into account in setting its prices ***before*** it sold any iPods with the [redacted] on it and ***before*** it could possibly know whether [redacted] would impact demand. Not only do the undisputed facts fail to support any of the links in this tortured chain of proof, but the record is fundamentally at odds with it.

First, Harmony was insignificant in 2006. Its share of music sales was less than 3% when Apple released iTunes 7.0. *Id.*, Ex. 4, ¶ 27, n.40. [redacted] But the proof plaintiffs must adduce is what Harmony sales were ***in 2006***. Earlier in the case, Dr. Noll admitted that he would not expect many consumers to be using Harmony in 2005 or 2006 because it had already been lawfully disabled by iTunes 4.7 and many consumers likely permanently abandoned it at that point. *Id.*, Ex. 9 at 147:20-148:5. And the best Dr. Noll can say now is that Harmony's share of the market in 2006 was less than 5%—"I don't remember the exact number. I know that it was small, yes." *Id.*, Ex. 10 at 80:22-81:5. The suggestion that Harmony could set off the chain of events outlined by plaintiffs is not simply implausible, but unsupported by the record.

Second, plaintiffs have no evidence regarding what portion of RealNetworks' small sales was to iPod owners or potential iPod purchasers. As a threshold matter, to the extent RealNetworks sold to consumers who did not own an iPod or had no intention of buying an iPod, those sales could not create any relevant lock-in or lock-out. As Dr. Noll admitted, in determining whether the [redacted] had any impact, the relevant sales are to the "fraction of people who used Harmony to play stuff on an iPod." *Id.*, Ex. 10 at 81:6-12. But plaintiffs have no proof that any

iPod users or potential users were buying Harmony music, let alone enough of them to affect iPod demand. As Dr. Noll admitted: "Q: Do you have any information or any estimate on how many iPod users bought music from RealNetworks? . . . A: No." *Id*. at 116:18-23.

Third, plaintiffs have no proof of the number of people who became locked in or locked out as a result of the [redacted]. It is not enough merely that a Harmony purchaser owned an iPod or was a potential iPod purchaser. Under Dr. Noll's lock-in theory, if that purchaser already owned a large iTS music library that he or she wanted to continue to play on a portable device, the purchaser would already be locked in by that library to buying iPods regardless of any new Harmony purchases. Similarly, any lock-in from increased iTS purchases would be irrelevant for customers who would have bought an iPod regardless, simply because of its design, ease of use and revolutionary features. As Dr. Noll admitted, plaintiffs' theory requires that there have been consumers whose decision about whether to purchase an iPod was changed as a result of the [redacted]. But Dr. Noll testified that he did not know how many people fell into that category: "We have no way of knowing that." *Id.* at 107:16-24.

Nor do plaintiffs otherwise offer any such evidence. Although the existence of such customers is pivotal to their claim, plaintiffs have not conducted any consumer survey or other investigation to try to identify these customers or determine how many might exist. Indeed, they do not have evidence of, or testimony from, even a ***single*** customer (let alone enough customers to affect prices) who says he or she (1) wanted to purchase a competing player rather than an iPod, but (2) switched to buying music from iTS instead of RealNetworks as a result of the update, and (3) thereafter bought enough additional iTS music that he or she was forced to buy an iPod instead of a competing player. Nor can they identify any RealNetworks customers who would have purchased an iPod but were locked out of doing so because of their Harmony purchases. Even the named plaintiffs do not allege that they were locked in or out as a result of [redacted]. None of them asserts that he or she purchased or would have purchased music from Harmony and either bought or did not buy an iPod as a result of not being able to play Harmony music on that iPod.

Fourth**,** despite extensive discovery related to Apple's pricing committee, plaintiffs

cannot identify any evidence that Apple ever took into account the amount of sales from RealNetworks or any other online store in setting iPod prices. Plaintiffs' theory is that Apple increased its prices because the [redacted] supposedly increased the inelasticity of demand for iPods. *See e.g.*, Amiri Decl, Ex. 8, p. 27. [redacted] For prices to have been affected in the manner plaintiffs assert, Apple not only would have had to take the [redacted] into account but do so before it could have possibly known what effect it would have, if any. Given the enormous volume of iPod sales at the time, and all of the factors that influence prices, it is complete speculation, at best, to say that the pricing committee's decision would have been influenced by the kind of unknown, miniscule, and theoretical change in demand elasticity plaintiffs hypothesize.

[redacted] This finding defies reality. Plaintiffs have no evidence that Apple ever priced its iPods in that fashion.

Over the years, Apple has obviously experienced changes in demand for its iPods that are much greater than anything that could have resulted from Harmony being disabled. And yet it has consistently adhered to its practice of setting only aesthetic prices—and not making small incremental price changes in the manner a service station might change its gasoline prices. No basis exists for saying it would have abandoned that longstanding practice if only Harmony had continued operating.

In short, plaintiffs' claim of impact is unrooted in any real-world evidence. Plaintiffs have no documentary or percipient witness testimony to show even the most basic facts necessary for their claim to be valid. This case has been pending for eight years. It has been over seven years since Apple issued the challenged updates. If there were any evidence supporting their implausible theory, Plaintiffs have had full opportunity to gather it. Their complete failure of proof requires that summary judgment be granted.

III. DR. NOLL'S REGRESSION MODEL IS INADMISSIBLE AND DOES NOT RAISE A GENUINE FACTUAL ISSUE REGARDING IMPACT OR DAMAGES.

With no direct evidence supporting their claim of impact on prices, plaintiffs rely on a regression model to try to estimate both impact and the amount of damages. But that model does not cure plaintiffs' failure of proof. It rests on unsupported assumptions and reaches results that conflict with real-world evidence. And it is improperly engineered through selective choice of variables and manipulation of data to misleadingly create the appearance of an impact where none exists. It is precisely the kind of "quite misleading" expert evidence that *Daubert* warns should not be given to the jury. *Daubert,* 509 U.S. at 595.

A. Dr. Noll's Regression Is Inadmissible Because It Does Not "Fit" The Facts Of The Case Or The Economics Of Plaintiffs' Own Theory.

Damage models that are premised on unsupported assumptions or assumptions that are at odds with the facts of the case or with plaintiffs' own theory are inadmissible. *See Concord Boat*, 207 F.3d at 1055-57 (expert's economic model "should have been excluded" where it "construct[ed] a hypothetical market which was not grounded in the economic reality of the stern drive engine market, for it ignored inconvenient evidence"); *So. P. Commc'ns Co. v. Am. Tel. &*

Tel. Co., 556 F. Supp. 825, 1077, 1079 (D.D.C. 1982) (concluding that "plaintiffs' model of the 'but for' world show[ed] no damages" where there was "obvious inconsistency between real world competitive conditions and [plaintiffs'] assumptions about competition in the imaginary 'but for' world"); *Daubert*, 509 U.S. at 591 (testimony must "fit" the facts of the case).

That is the case here, and is the threshold reason Dr. Noll's regression should be excluded. As shown in the preceding section, the price effect Dr. Noll's model purports to find is unsupported by any real-world evidence regarding the amount of Harmony sales, the purchasers of Harmony music, the degree of any resulting lock-in or lock-out, or any awareness or consideration by Apple's pricing committee of any effect from the [redacted]. It predicts that Apple would have changed its prices across the board to every customer. No evidence supports that implausible assertion. In *American Booksellers Ass'n, Inc. v. Barnes & Noble, Inc.*,135 F. Supp. 2d 1031 (N.D. Cal. 2001), the court refused to admit plaintiffs' expert's economic model because it "contain[ed] entirely too many assumptions and simplifications that [were] not supported by real-world evidence." *Am. Booksellers Ass'n v. Barnes & Noble*, 135 F. Supp. 2d 1031, 1041-42 (N.D. Cal. 2001). Among other flaws, the model did not "take into account the actual retail pricing policies of plaintiffs or defendants and … simply assume[d] that prices will be set in a way that maximizes profits." *Id.* at 1040. Dr. Noll's model is flawed for the same reason.

Dr. Noll's regression is also inconsistent with his own economic theory. The model finds a single, constant percentage overcharge on every iPod sold during the damage period with [redacted]

[redacted] Amiri Decl., Ex. 8 at Exs. 5-6. If his theory were correct, however, the lock-in would have progressively increased during the damage period as consumers purchased more iTS music. Dr. Noll offers no coherent theory how the alleged overcharge amount could possibly remain constant in these circumstances. In his rebuttal report, Dr. Noll suggests that lock-out from the [redacted] would affect iPod prices immediately. *Id.* at p. 27. Even if that were true, however, Dr. Noll continues to assert that other customers would be locked in to buying iPods, that the extent of lock-in would increase over time, and that the effect of lock-in is to "reduce[] the intensity of price competition among" music players. *Id.* at n.7. He does not explain how, under these circumstances, the price effect he postulates would remain constant over the entire two-year damage period. *Id.*, Ex. 11 at 85:11-85:24.

Because it rests on unsupported assumptions that conflict with the real world, Dr. Noll's regression must be excluded. *See McGlinchy v. Shell Chem. Co*., 845 F.2d 802, 807 (9th Cir. 1988) (affirming exclusion of damages study that rested on "unsupported assumptions"); *El Aguila Food Prods., Inc. v. Gruma Corp*., 301 F. Supp. 2d 612, 625 (S.D. Tex. 2003) *aff'd*, 131 F. App'x 450 (5th Cir. 2005) (excluding damages model that "ignore[d] market realities").

B. The Regression Does Not Properly Account For the Relevant Factors.

A valid regression must account for the factors that may influence the characteristic being measured—here, the price of iPods. Failure to do so can bias the results, by attributing an effect to one event or characteristic that actually belongs to another. Dr. Noll's regression fails to satisfy this basic requirement in at least three separate respects, each of which independently requires that his testimony be excluded.

1. The regression does not properly account for the lawful effect of iTunes 4.7 and thus uses the wrong "but-for" world.

Dr. Noll's regression includes variables for events that he contends may have affected iPod prices. One of these variables is his iTunes 7.0 variable, which he claims measures the effect of Harmony being disabled in 2006. Other variables include such things as the opening of the iTS in April 2003, the original Harmony launch in July 2004, the release of iTunes 4.7 in October 2004, and the record labels' elimination of the DRM requirement for Apple's compete-

tors in early 2008. Dr. Noll includes these other variables because, if plaintiffs' theory were valid, he believes these events would be expected to affect iPod prices in the same manner plaintiffs say the [redacted] did. For each of these variables except the variable for the release of iTunes 4.7 (which he calls "Harmony Blocked"), Dr. Noll turns the variable "on" (*i.e.*, sets its value to 1 in the equation) on the date of the event and leaves it on for the rest of the class period.

Dr. Noll treats iTunes 4.7 differently. In his initial report, Dr. Noll turned the iTunes 4.7 variable off as of September 12, 2006, the day the [redacted] was released. Amiri Decl., Ex. 4 at ¶ 90. Dr. Noll admits that a variable should be included if it represents a factor that might plausibly affect prices. ECF No. 685, p. 9. Thus, by turning the iTunes 4.7 variable off, his regression treated iTunes 4.7 as having no plausible effect on prices after the [redacted] was released—and thus treats the but-for world as one in which iTunes 4.7 did not exist. Amiri Decl., Ex. 4 at ¶¶ 94-95.

That treatment was inconsistent with plaintiffs' theory and with Dr. Noll's own admissions. Plaintiffs' theory is that, by disabling Harmony in 2004 and allegedly increasing iTS sales, iTunes 4.7 caused iPod prices to increase (albeit lawfully given this Court's ruling that iTunes 4.7 was lawful (ECF No. 627, p. 11)). And Dr. Noll admitted that, under plaintiffs' theory, this alleged effect could persist even after the [redacted] was issued because the initial shutdown of Harmony in 2004 could have caused consumers to permanently abandon Harmony. Amiri Decl. Ex. 10 at 68:2-70:16 ("Q: And could that consumer expectation continue even after 7.0 is issued? A: Exactly, it could."). For such consumers, it was iTunes 4.7 [redacted]) that resulted in fewer purchases from RealNetworks and whatever effect that may have had on iPod prices. By nonetheless turning off the iTunes 4.7 variable when he turned on the iTunes 7.0 variable, Dr. Noll caused the iTunes 7.0 variable to capture this continuing effect from iTunes 4.7. *See id*., Ex. 3 at ¶102; Ex. 4 at ¶¶ 92-93.

In his rebuttal report, Noll responds by revising his regression to leave on the iTunes 4.7

[redacted] This, however, does not address the problem,

because the persistence effect he admits could have existed applies to all iPods, not just those unaffected by 7.0. As discussed, wholly apart from the [redacted], some customers may have been permanently dissuaded from using Harmony once it was disabled by iTunes 4.7, as Dr. Noll has admitted. This effect does not depend on which iPod the customer owns or whether the [redacted] was implemented on it. It is an effect on ***consumers*****,** resulting from the earlier disabling of Harmony, not from the iPod they later purchase.

In his latest model, Dr. Noll then compounds this error by not turning on the iTunes 7.0 variable for those iPod models on which [redacted] was not implemented. By doing so, he treats [redacted] as not having any possible effect on demand for those models. But that treatment is contrary to Dr. Noll's own assertion that "[t]he effect on prices [from iTunes 7.0] is not necessarily limited to just the products that were sold that had 7.0 in them." *Id.*, Ex. 10 at 46:2-4. According to Dr. Noll, that is because disabling Harmony in 2006 was a "market-defining event." *Id*., Ex. 10 at 48:24-49:17. Thus, contrary to what he does in current model, Dr. Noll previously admitted that turning on the iTunes 7.0 variable for all models is "the right way to do it." *Id*., Ex. 10 at 49:14.

The effect of these errors is to find an impact where none exists. Fixing these errors—by leaving on the iTunes 4.7 variable throughout the period and by turning on the iTunes 7.0 variable as to all models—reduces the claimed damages to zero. *Id.*, Ex. 14 at ¶ 7, ¶ 15 & Ex. JT-2a JT2b. Damages for resellers are likewise reduced to zero even if only the latter error is corrected—*i.e.*, the iTunes 7.0 variable is turned for all models, without changing his treatment of the iTunes 4.7 variable. *Id*.

2. The regression does not account for the impact of the unchallenged aspects of [redacted].

Dr. Noll's regression includes a single "iTunes 7.0" variable that he asserts measures the alleged unlawful overcharge in iPod prices. *Id.*, Ex. 3 at p. 81; *see also* Ex. 3 at ¶ 80. However, plaintiffs challenge only one aspect of the iTunes 7.0—[redacted]. They do not challenge the other aspects of iTunes 7.0 that are much more likely to affect demand for iPods, "including new album covers views of music, TV shows, movies with better browsing capability and videos with 'near

DVD' quality." *Id.*, Ex. 3 at ¶ 113; *see also* Ex. 4 at ¶ 110. Reflecting all of these value-enhancing features, Apple described iTunes 7.0 at the time as "the most significant enhancement to the world's most popular music jukebox and online music and video store since it debuted in 2001." *Id.*, Ex. 12. Dr. Noll's regression must control for these other, unchallenged aspects of iTunes 7.0 to ensure that the coefficient on the iTunes 7.0 variable captures ***only*** the price impact of the challenged conduct. *Id.*, Ex. 3 at ¶¶ 80, 108; Ex. 4 at ¶ 48.

Dr. Noll does not deny the need to control for the other, unchallenged aspects of iTunes 7.0—and he admits that failing to control for them would result in erroneously attributing to the [redacted] a price effect caused by something else. *Id.*, Ex. 10 at 34:19-25, 35:2-5. He asserts, however, that all of the attributes of iTunes 7.0 that might affect iPod prices are captured in his other variables. When pressed to identify those other variables, he pointed to the variables for the type of iPod (classic, mini, nano and shuffle) and his variables for storage capacity and photo and video capability. *Id*. at 31:11-32:21.

This is insufficient. Dr. Noll cannot explain how any of these variables would capture the effect of the other, unchallenged aspects of iTunes 7.0. The fact that a given iPod is a nano or a classic does not shed any light on whether the ability to browse by album cover increased the value of that iPod. Nor does the iPod's storage capacity answer that question. Similarly, ability to display a video is not the same as being able to play, for the first time, a full-length movie.

Because iTunes 7.0 included "unique attributes" that Dr. Noll's model ignores, the model cannot accurately determine whether "any price-elevating impact of iTunes 7—assuming there even was one—was due to the [redacted] as opposed to other value-enhancing features of iTunes 7." Amiri Decl., Ex. 3 at ¶ 113. Expert damages calculations that fail to "segregate the losses, if any, caused by acts which were not antitrust violations from those that were" will not assist the trier of fact and must be excluded.[4] That is the situation here.

---

[4] *City of Vernon v. S. Cal. Edison Co.*, 955 F.2d 1361, 1372-73 (9th Cir. 1992) (damages study that treated lawful acts as "contribut[ing] to the damage figure" was not competent evidence of damages); *see also Concord Boat*, 207 F.3d at 1056-57 (expert opinion as to the alleged overcharge "should not have been admitted because it … did not separate lawful from unlawful conduct"); *In re Se. Milk Antitrust Litig.*, 2012 WL 1032797, at *5-6 (expert damages (continued)

3. The regression does not account for major product characteristics and other factors relevant to price.

Dr. Noll recognizes that product features are important determinants of price, and thus his regression includes variables for a few such characteristics—*e.g.*, storage capacity, photo and video capability, and size (cubic inches). *Id*., Ex. 10 at 30:22-32:21 & Ex. 7 at Ex. 13. But he omits numerous other characteristics that are equally (if not more) likely to affect price, including battery life, display size, weight, screen resolution, and type of connector (USB or FireWire). *Id*., Ex. 3 at ¶ 110; *see also* Ex. 4 at ¶ 111, Ex. 10.

"Omitted variable bias arises when important explanatory variables that have been omitted from the regression model are correlated with included explanatory variables. . . . This misspecification will bias the resulting coefficient estimates, and make these estimates unreliable for damage estimation." American Bar Association, *Proving Antitrust Damages: Legal and Economic Issues* 148 (2d ed. 2010). Thus, courts have repeatedly recognized that failing to control for major variables renders a regression unreliable and inadmissible.[5] That is the circumstance here. As Dr. Noll recognized by including some product characteristic variables in his regression, product features are important to determining price—and there is no basis for thinking that storage capacity (which he included) is relevant while battery life, screen size, screen resolution, weight and type of connector (all of which he excluded) are irrelevant. As Dr. Noll has admitted, a variable should be included if "prices plausibly could be affected by it."

---

model measuring price impact of lawful merger rather than price impact of the alleged conspiracy could not establish antitrust injury).

[5] *In re Live Concert Antitrust Litig.*, 863 F. Supp. 2d 966, 973-83 (C.D. Cal. 2012) (excluding expert regression that failed to account for major variables); *In re REMEC Inc. Sec. Litig.*, 702 F. Supp. 2d 1202, 1273-74 (S.D. Cal. 2010) (excluding regression that made "no attempt to account for other possible causes" of changes in stock price); *In re Graphics Processing Units*, 253 F.R.D. at 496-97 (finding plaintiffs' econometric models to be "grossly lacking" where they omitted "factors that would likely have an impact on prices); *In re Methionine Antitrust Litig.*, MDL No. 00-1311, 2003 U.S. Dist. LEXIS 14828, at *9-10 (N.D. Cal. Aug. 22, 2003) (holding that failure to take into account variables that could affect price rendered analysis unreliable); *Blomkest Fertilizer, Inc. v. Potash Corp. of Saskatchewan*, 203 F.3d 1028, 1038 (8th Cir. 2000) (finding econometric model not to be probative where the model failed to take into account relevant events).

ECF No. 685, p. 9. That standard is more than satisfied as to the omitted characteristics here. Not only are the attributes on their face just as likely (or more likely) to affect demand as the attributes Dr. Noll included, [redacted] Moreover, under plaintiffs' theory, each of these characteristics would be expected to be correlated with the iTunes 7.0 variable, as each would be expected to make iPods more desirable and thus increase demand.

The relevance of these characteristics is confirmed by regressions run by Apple's experts, which included variables for the excluded characteristics. When the proper but-for world is used, controlling for even a few of the iPod features Dr. Noll omitted reduces the claimed damages to zero. Amiri Decl., Ex. 14 at ¶ 6, ¶12-14, ¶¶16-22 & Ex. JT-1a, JT-1b. By failing to control for the relevant product characteristics, Dr. Noll's regression erroneously attributes iPod price changes to [redacted] that actually are the result of the omitted variables, and "produce[s] an overcharge where none exists." *Id.* ¶¶ 79-80; *see also* Amiri Decl. Ex. 4 at ¶ 110. The regression is thus inadmissible. As the court recognized in excluding the regression model in *Freeland v. AT&T Corp.,* 238 F.R.D. 130 (S.D.N.Y. 2006), "an unsupported assumption that changes in quality would never affect . . . price is insufficient to justify its exclusion from the regression analysis, particularly in light of evidence to the contrary." *Id.* at 148.

In his rebuttal report, Dr. Noll does not dispute the need to control for product characteristics that could affect price. Nor does he deny that the product characteristics he omitted could affect price. He argues instead that his other variables capture any effect from the omitted features. Amiri Decl., Ex. 8 at pp. 8, 31. But he does not explain how, for example, a variable for storage capacity (or video capability) would measure the impact of introducing batteries with longer battery life. Or how a variable for the size of the iPod captures the value of enhanced screen resolution. He suggests that his nano variable would capture the effect of any feature "that is found only in an iPod nano." *Id.* at p. 31. But he does not assert that the features he has excluded are unique to the nano or to any other specific iPod model. In fact, they are not. Battery life, display size, weight, screen resolution, and type of connector (USB or FireWire) are not

specific to any model – any more than are the storage capacity or video capability variables Dr. Noll opted to include in his model.

Like the expert in *Freeland*, Dr. Noll has "offered no empirical analysis to support his conclusion" that the features he has excluded are irrelevant to price, despite their obvious importance to inconsumers. 238 F.R.D. at 146. His regression is thus "so incomplete as to be inadmissible as irrelevant." *Id.* at 147 (quoting *Bazemore v. Friday*, 478 U.S. 385, 400 (1986)).

C. The Regression Does Not Provide Statistically Significant Results.

Dr. Noll's regression is inadmissible for an additional, independent reason: his damages estimates are not statistically significant. Dr. Noll asserts that his regression should be accepted because the low standard errors on the coefficients he reports supposedly show that the coefficients are statistically significant. Amiri Decl., Ex. 6 at p. 80. But he has vastly underestimated the standard errors. When properly calculated, the standard errors show that the coefficient for 7.0 is statistically ***insignificant***—*i.e.*, no different from zero and thus meaningless to show any impact on prices.[6]

As Dr. Noll explains, a fundamental assumption relied on in regression analysis is that the errors or residuals (the portion of the price that cannot be explained by the explanatory variables) are uncorrelated or independent of one another—*i.e.*, that "the magnitude of the error in one observation does not reveal any information about the magnitude of the error in another observation." *Id.*, Ex. 8 at pp. 36-38; Ex. 11 at 23:9-24:7; Ex. 4 at pp. 32-33. If the errors within a group are correlated (not independent), they are said to be clustered and must be addressed by standard correction methods. *Id.*, Ex. 4 at pp. 34-35; *Proving Antitrust Damages*, p. 147 (allowing for clustering is "used generally in practice"). If no correction is made, the standard errors will be miscalculated and will under- or over-estimate the model's precision. Amiri Decl.,

---

[6] Standard errors measure the precision with which the coefficients are estimated—the confidence that the true value is near the estimated value. The smaller the standard error, the more precise the results. Standard errors can be used to calculate a t-statistic, which reflects the degree of confidence that the estimate for the coefficient did not arise by chance when the true effect of the variable in question is actually zero. Amiri Decl., Ex. 3 at pp. 46-47; Ex. 4 at pp. 22-23, 27-37.

Ex. 11 at 25:15-20; Ex. 4 at pp. 34-37; Ex. 3 at pp. 50-51.[7]

Dr. Noll admits that there are standard procedures to test whether the errors in a regression are correlated. *Id.*, Ex. 14 24:9-14. But he did not employ any of those procedures, even after Apple's experts explained that the errors in his regression are in fact correlated. *Id.* at 27:9-32:8, 45:23-46:9. Had he run such a test, he would have discovered that errors within certain groups or clusters are highly correlated, revealing that the independence assumption is false. *Id.,* Ex. 14, ¶ 10.

Correcting for this fundamental error renders Dr. Noll's estimated "overcharges" statistically indistinguishable from zero. On his regression for reseller transactions, the t-statistic for the iTunes 7.0 co-efficient goes from 37.599 to a corrected 0.577. *Id.,* Ex. 14, at ¶ 9 & n.9 & Exhs. JT-1a, JT-1b & App. D1a, Dib. And in the direct sales regression, it goes from 448.711 to 1.536 *Id*. T-statistics of less than 2 signify the result is not statistically significant. *Id.*, Ex. 4 at ¶ 63. Because its results are not statistically significant, Dr. Noll's "model provides no reliable evidence that the iTunes 7 update had any material effect on the prices of iPods." *Id.*, Ex. 3 at ¶ 99*; see also* Ex. 4 at ¶¶ 79-84.

IV. DR. NOLL'S RELEVANT MARKET OPINIONS SHOULD BE EXCLUDED AND SUMMARY JUDGMENT GRANTED FOR FAILURE OF PROOF ON THAT ISSUE.

To prove a monopolization claim, the plaintiff must define the relevant product market. *Spectrum Sports, Inc. v. McQuillan*, 506 U.S. 447, 455-59 (1993). Doing so requires identifying "the pool of goods or services that enjoy reasonable interchangeability of use and cross-elasticity of demand." *Oltz v. St. Peter's Cmty. Hosp.,* 861 F.2d 1440, 1446 (9th Cir. 1988). Dr. Noll purports to define two relevant product markets: the device market, which he opines includes

---

[7] *Proving Antitrust Damages*, pp. 145-46 ("There can be substantial consequences from estimating the standard errors for the coefficient estimates as if the errors were uncorrelated when they are in fact correlated. With positive correlation between the error terms, the incorrectly estimated standard error generally will be biased downward, making the regression coefficients seem to be more precisely estimated than they really are. As a result, a statistical test on the coefficients may yield what appears to be a statistically significant result but is not.").

only portable digital media players; and the music market, which he opines consists solely of digital audio files. Amiri Decl., Ex. 6 at pp. 23-42. This testimony should be excluded, because it is not the product of reliable economic principles and methods.

Dr. Noll did not employ the economic methods courts have recognized as valid for defining a relevant market. He admits that economists typically determine relevant markets by estimating cross-elasticity of demand. *Id.* at pp. 23-24. But he did not do that. He similarly alludes to the "hypothetical monopolist" test endorsed by the Department of Justice. But he did not employ that method either. Nor did he conduct any other thorough quantitative analysis of prices, costs or output of potential competing products. Like the expert excluded in *Menasha Corp. v. News Am. Mktg. In-Store, Inc*., 354 F.3d 661, 664 (7th Cir. 2004), he "introduced no econometric analysis of any kind" related to market definition. He asserts that economists rely on surveys of buyers, or statements of executives in the industry. But he does not present any such evidence.

Rather than relying on any accepted economic methods, Dr. Noll offers his own truncated review of what he perceives to be the similarities or dissimilarities between certain products, with an occasional citation to a news article or other report from the internet. He does not purport to be applying any economic expertise in doing so. Nor does he profess to have any industry or other experience that would make him an expert on what consumers consider to be substitutes for digital music and music players. This portion of his report could have just as easily been written by a non-expert lawyer or anyone else with the ability to run internet searches. It is not valid expert opinion. *See Live Concert*, 863 F. Supp. 2d at 994 (excluding expert report purporting to define relevant product market where expert "purported to rely on 'industry information' … [but] did not utilize a reliable methodology for interpreting and applying this information").[8]

---

[8] *Brown Shoe Co. v. United States*, 370 U.S. 294 (1962), held that "practical indicia" may determine "[t]he boundaries of … a submarket." *Id.* at 325. But the Ninth Circuit has never held that the relevant product market can be defined "*exclusively* by reference to these 'practical indicia.'" *In re Live Concert*, 863 F. Supp. 2d at 985-86; *accord Reifert v. S. Cent. Wisc. MLS Corp*., 450 F.3d 312, 320 (7th Cir. 2006). And Dr. Noll did not in any event employ any economic expertise related to any practical indicia.

In addition to not applying any relevant expertise, Dr. Noll's non-expert product review is flawed. As to the player market, he refers only to CD players and cell phones, without discussing any other potentially competing devices for playing digital music, such as notebook computers and home stereo systems—products that Apple's witnesses testified they considered to be competitive products. Amiri Decl., Ex. 13 at 48:4-10. Likewise, Dr. Noll does not address whether customers might substitute free downloads from peer-to-peer file sharing sites for iTS music, disregarding evidence that the availability of free downloads was a major challenge to the success of paid music stores like iTS. *Id.*, Ex. 3 at ¶ 125. Instead, Dr. Noll "focused on finding the perfect substitute[s] for [iPods and iTMS music]," ignoring that some "flexible elastic buyer[s]" will switch to "substitutes, even if the substitutes are imperfect." *Va. Vermiculite Ltd. v. W.R. Grace & Co.-Conn.*, 98 F. Supp. 2d 729, 737 (W.D. Va. 2000) (excluding expert testimony for failure to "thoroughly examine substitutes when defining the market"); *Ky. Speedway, LLC v. Nat'l. Assoc. of Stock Car Auto Racing, Inc.*, 588 F.3d 908, 916-17 (6th Cir. 2009) (affirming order striking expert's "report and deposition testimony because he had included only Busch series and open-wheeled races as possible substitutes for attending live NASCAR stock-car racing events or watching them on television" without considering "other sports—and possibly other forms of entertainment—as substitutes").

To the extent Dr. Noll does address possible substitutes, he excludes them based on improper considerations. For example,

- Dr. Noll assumes that cell phones must be able to download music over wireless carriers' networks to be substitutes for iPods. Amiri Decl., Ex. 6 at pp. 29-31. But iPods never had that capability during the class period. *Id.*, Ex. 3 at ¶ 130. Only the iPod Touch could download music at all, and only over a Wi-Fi connection, not a wireless network. *Id.*
- Dr. Noll excludes on-demand and non-interactive streaming music from the market because those services were not fully available on mobile devices during the class period. *Id.*, Ex. 6 at pp. 33-39. But support for mobile devices is not relevant to consumers who purchased music to play on other devices, and Dr. Noll presents no analysis as to the volume of iTS sales for use on such other devices. *Id.*, Ex. 3 at ¶ 126.

- Dr. Noll opines that a streaming music service (like Pandora) is "most likely" not a substitute for iTS music because it is not fully customizable. *Id*., Ex. 6 at p. 37. But he offers no data or reasoned analysis to explain why a service must be fully customizable before consumers will choose it over permanent downloads.
- Dr. Noll offers only untested, subjective opinions for his conclusion that CDs are not close substitutes for downloads, (*see id*., Ex. 6 at pp. 39-41), [redacted]

Expert opinions based on untested assumptions and subjective opinions, as opposed to market data, are routinely excluded as inadmissible under *Daubert*.[9] Even "reasonable" or "intuitively obvious" presumptions cannot form the basis for expert opinions. *See United Food Mart, Inc. v. Motiva Enters., LLC,* 404 F. Supp. 2d 1344, 1349-50 (S.D. Fla. 2005) (expert opinion based on "reasonable" assumption that gas stations located within two miles on one another on the same road compete excluded because expert did not "test [it] by reference to specific facts of this case"); *SMS Sys. Maint. Servs., Inc. v. Digital Equip. Corp*., 188 F.3d 11, 25 (1st Cir. 1999) (refusing to credit expert opinion based on an "intuitively obvious proposition" and sources the expert "neither attaches nor discusses").

In sum, Dr. Noll's proposed relevant product definitions must be excluded because they are the product of untested, subjective opinions regarding customer preferences, as opposed to any economic analysis of the markets, the interchangeability of products, or actual consumer behavior. And, because—absent Dr. Noll's opinion—plaintiffs have no basis upon which to prove a relevant market, summary judgment should be granted on this ground as well. *In re Live Concert*, 843 F. Supp. 2d at 1000 (granting summary judgment for lack of proof of relevant market after excluding expert witness opinion); *Va. Vermiculite, Ltd. v. W.R. Grace & Co.-Conn.*,

---

[9] *See In re Live Concert*, 863 F. Supp. 2d at 994 (excluding expert's relevant market definition where expert "relied on his own subjective opinion in order to determine which performers qualify as 'rock' artists"); *McLaughlin Equip. Co., Inc. v. Servaas*, No. 98-127-C-T/K, 2004 WL 1629603, at *6 (S.D. Ind. Feb. 18, 2004) (excluding expert's relevant market opinion where it was "based on insufficient data," including only one piece of market data).

108 F. Supp. 2d 549, 576 (W.D. Va 2000) (same); *Ky. Speedway,* 588 F.3d at 919 (affirming summary judgment after concluding that expert testimony on relevant market had been properly excluded).

CONCLUSION

Dr. Noll's testimony regarding impact, damages and relevant market should be excluded and summary judgment granted to Apple.

Dated: December 20, 2013

Respectfully submitted,

JONES DAY

By: /s/ Robert A. Mittelstaedt
Robert A. Mittelstaedt

Counsel for Defendant APPLE INC.

SFI-847506v2