

EXHIBIT 1

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UNITED STATES DISTRICT COURT FOR THE
NORTHERN DISTRICT OF CALIFORNIA
SAN JOSE DIVISION

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THE APPLE IPOD iTUNES ANTI- No. C-050037-JW(RS)
TRUST LITIGATION,

_____ /

DEPOSITION OF ROGER G. NOLL, Ph.D.

Taken before EARLY K. LANGLEY, RPR, RMR

CSR No. 3537

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1 Q. And at what point did you think this case,
2 as it was described to you, sounded a lot like
3 Microsoft?

4 A. Instantaneously.

5 Q. And what was it about the description of 10:20
6 this case that led you to that initial reaction?

7 A. We were talking about the tying aspect of
8 it, and that's what sounded like it was -- had a
9 similarity to tying middleware to operating
10 systems that were parts of numerous complaints 10:20
11 against Microsoft.

12 * Q. Do you have any information one way or
13 another whether a consumer can play music from the
14 iTunes store on any portable digital player other
15 than iPod? 10:21

16 A. Well, I'm -- yeah, I'm aware precisely
17 what their limitations are. I mean, if you -- the
18 mechanism is to either do an actual or virtual
19 burn of the CD and then replay it.

20 Q. And in that way, music can be played from 10:21
21 the iTunes store on portable players other than an
22 iPod; correct?

23 A. If you go through that set of procedures,
24 yes. Just like you could always use Netscape,*
25 even though Internet Explorer was the default

1 sometimes the first person in line buys it for
2 whatever the retail price is and resells it on
3 eBay that day for two or three times while -- what
4 that person paid for it.

5 So the nature of consumer demand is that 10:25
6 some people have a high willingness to pay, some
7 people have a medium willingness to pay, some
8 people have a low willingness to pay. The issue
9 is what is the actual market price and how did
10 that market price come about. 10:26

11 Q. Do you -- does it matter to your opinion
12 on the economics of this case whether a consumer
13 purchased an iPod based on that consumer's
14 evaluation of iPods versus competing products,
15 without regard to the availability of music from 10:26
16 Apple's music store?

17 A. What is the -- what is essential for this
18 case to have any merit on the tying side has to do
19 with whether there is a substantial effect on the
20 demand for and price of iPods. 10:26

21 * And so the identity of a particular
22 consumer with respect to whether their objective
23 was getting access to digital downloads, on a
24 portable digital player is not what's relevant. *
25 What's relevant is were there enough people in the 10:27

1 market who wanted to use it for that purpose such
2 that the tie enabled a firm with market power in
3 digital downloads to transfer that market power to
4 the portable digital media player and thereby
5 succeed in raising price in that second market and 10:27
6 did it, in fact, increase the demand for that
7 particular product because of its unique ability
8 to download things from the iTunes Music Store.

9 Q. Is that a "no" to the question?

10 A. Well, it's an explanation because it, you 10:27
11 know, "yes" or "no" doesn't -- I mean, you asked a
12 question about the specific consumers, and it's
13 markets that matter, not specific consumers.

14 So it has to be some consumers out there
15 bought it for the purpose of digital downloads. 10:28
16 It doesn't have to be all and I don't have to
17 identify some specific customer who bought it for
18 that purpose.

19 * What's necessary is that it shifted the
20 demand curve outward for iPods to have it be the 10:28
21 only one that could access iTMS. So it's
22 something that the market level, not the
23 individual -- the demand curve outward because of
24 its unique ability to access the iTunes Music
25 Store. *

1 Q. Okay. And what is the "it" there when you
2 say it shifted --

3 A. The fact that there was a differential
4 ease of access that it was substantial between
5 iPods and competing portable digital media 10:28
6 players.

7 Q. Okay. And that differential ease of
8 access is the two extra steps, burning and
9 ripping; correct?

10 * A. The issue with -- yes. The issue is the 10:28
11 question -- the core question is whether that is
12 substantial enough to -- to be the equivalent of a
13 small but significant nontransitory increase in
14 price. That is to say, does it impose a cost that
15 is sufficient so that it affects peoples' 10:29
16 decisions about which portable digital media
17 player to buy. *

18 Q. Okay. And, again, the "it" in that answer
19 is the two extra steps to get music from Apple's
20 music store to a competing player as opposed to an 10:29
21 iPod; is that correct?

22 A. There's that aspect to it, plus there's
23 also a potential issue about the quality of
24 reproduction arising from undertaking those steps.

25 Q. Okay. Do you hold the view that that type 10:29

1 * The issue is not would they have market
2 power. The issue is not does all of their market
3 power derive from the tie. The issue is is there
4 a not insubstantial part of that market power that
5 is derived from the tie.* 11:25

6 So, the fact that the defendant believes,
7 and I'm certainly willing to accept believes
8 honestly, that their product is the best product
9 isn't the relevant issue.

10 The relevant issue is in the absence of 11:26
11 the tie would they have made the same sales at the
12 same price or would there have been a difference.*

13 * Q. And by "the tie," you're referring to what
14 you called earlier the differential ease of
15 access? 11:26

16 A. I'm referring -- well, I'm -- that's your
17 version of it.

18 My version of it is by the exclusive --
19 exclusivity of the FairPlay Digital Rights
20 Management system which is a dual decision, 11:26
21 decision not to use any other Digital Rights
22 Management system and a decision not to license
23 FairPlay.*

24 Q. Okay. And as you look at the result or
25 the consequences of those, that dual decision, the 11:26

1 case, then the total monopoly profits go up, if
2 you can engage in tying.

3 * Q. Okay. Have you made any analysis of the
4 impact of the alleged tying arrangement on the
5 price of music? The price of iTunes music? 14:24

6 A. I have done no analysis of the effects of
7 the alleged tying. I don't have a merits
8 conclusion. So I -- I haven't done it for the
9 tied product or the tying product, though. This
10 is not the liability phase. This is the class 14:24
11 certification phase.

12 Q. Is it --

13 A. I don't have a conclusion about what the
14 effects on the price of anything were.

15 Q. Okay. Is it plausible that if the 14:24
16 plaintiffs were right that there was a tying
17 arrangement, it would have caused the price of
18 iTunes store music to drop?

19 A. Maybe, maybe not.

20 Q. Compared to the but-for world? 14:25

21 A. There's -- you can't -- you cannot --
22 there's no theoretic answer to that question.
23 It's an empirical question. Maybe, maybe not. It
24 depends.

25 Q. It depends on the results of a regression 14:25

1 analysis taken into account the factors that
2 affect demand for iTunes music?

3 A. Well, I would have said that's an example
4 of one way to answer the problem, yes. But it --
5 that's not -- the "it depends" part is it depends 14:25
6 on the conditions in the market, the circumstances
7 in the market.

8 Q. Okay.

9 A. Both technical circumstances of production
10 and demand circumstances. 14:25

11 ~~*~~ Q. Okay. Can you describe what circumstances
12 in the market would lead to a lowering of the
13 price of the -- of iTunes music as a result of the
14 alleged tie?

15 A. The closer the two products are to having 14:26
16 a fixed quantitative relationship in terms of the
17 quantity purchased of each.

18 Q. Can you give me an example on the other
19 side other than the converse of that?

20 A. Well, in the case of -- the reason -- it's 14:26
21 sort of facetious because obviously this isn't
22 that case. I mean, people typically have an iPod,
23 and then they vary in the number of tunes they
24 buy. All right. So, the -- in this -- it's
25 obviously not a fixed relationship between the 14:26

1 complements.

2 The -- an example of something that is a
3 fixed relationship would be you had to have a
4 personal computer. Right. And one personal
5 computer produces an iPod. Right. Something to 14:27
6 interact with an iPod. So that's closer. It
7 isn't complete because someone might have two or
8 three PCs, but that's closer to being. And then
9 even closer still would be the memory in an iPod
10 is in a fixed relationship to the iPod or the 14:27
11 microprocessor is in a fixed relationship to the
12 iPod.

13 Q. Okay. Other than the fixed-relationship
14 concept, what would be another circumstance in the
15 market that would lead theoretically to the 14:27
16 conclusion that the price of the tying product,
17 the music, would be lowered as a result of an
18 actual tie?

19 A. Well, the -- the cost of the substitute
20 for the tied -- the tying product and the tied 14:27
21 product.

22 I mean, had you asked me about at length
23 there's an alternative to iTunes called going out
24 and buying a CD and ripping it. And that's --
25 that puts a ceiling on whatever iTunes could ever 14:28

1 charge for digital, permanent digital downloads.

2 Q. Okay. So how would that have an effect on
3 whether the price of the tying product, the music,
4 is lowered as a result of the tie if there were a
5 tie? 14:28

6 A. Well, in principle, if I make a bunch of
7 other assumptions, that produces a world in which
8 iTunes faces a kinked demand curve.

9 Q. Kinked?

10 A. Were -- Yeah. K-i-n-k-e-d. 14:28

11 Q. Demand curve.

12 A. It's elastic that prices represent the
13 cost of the alternative source and it's inelastic
14 at prices below that in which case they'd always
15 be pricing it to kink no matter what. 14:28

16 Q. What other conditions are necessary?

17 A. You don't mean "necessary." What other
18 conditions would lead to there being no effect?

19 Q. Better question.

20 A. Well, there's another issue about what's 14:29
21 called exploitation of the installed base, which
22 is getting a large installed base out there at the
23 -- at -- in a world in which you have the, quote,
24 "low introductory price," unquote, of iTunes. And
25 then after the installed base is there raising the 14:29

1 price. That would be a whole different world. *

2 Q. Okay. Your report says that the price
3 difference between two iPod models is twice the
4 difference in the cost of the memory and that the
5 memory, difference in size of memory, is the only 14:30
6 difference between the two models.

7 Do you remember that, generally?

8 A. I remember reporting that's what somebody
9 else found in their analysis.

10 Q. Okay. Can you tell from that comparison 14:30
11 of price and cost difference whether Apple has any
12 market power?

13 A. Well, as I said earlier, that's -- the
14 reference there is to illustrate the feasibility
15 of a method as contrasted to reach a conclusion. 14:30

16 All right. And what that paper
17 illustrates is the feasibility of the method of
18 doing a comparative analysis of markups across
19 products based on component analysis.

20 Now, in order to believe that the result 14:30
21 supports that conclusion, you'd have to -- I'd
22 have to have access to the complete data. I mean,
23 the underlying problem with citing that paper for
24 the purpose you described is they weren't using
25 component prices as paid by Apple. They were 14:31

1 A. Yeah. Well, in the tying part of the case
2 it's not insignificant or insubstantial. In the
3 rule of reason part, it's more.

4 Q. Do you agree that the plaintiffs need to
5 show in this case at what point the Music Store 14:39
6 gained a sufficient market power?

7 A. I believe they bear the burden of proof
8 that it had market power. What -- I don't know as
9 a legal matter whether they have to state the
10 date, but they certainly have to demonstrate that 14:39
11 there was a -- was market power in iTunes for some
12 significant period of time, yes.

13 * Q. Okay. And do you have a view on whether
14 that market power was attained by the market -- by
15 the Music Store on day one? 14:39

16 A. Do I have a view?

17 As an economic expert, I haven't done the
18 work necessary to prove that one way or the other.
19 My expectation is that if not on day one very
20 early in the process it's likely that they had 14:40
21 market power in digital, permanent digital
22 downloads just by virtue of the fact there were no
23 close substitutes that had anything like their
24 inventory of products. *

25 Q. Okay. Which is not to say that market 14:40

1 * A. It's how technically literate they are.
2 How easy it is for them to switch the file format,
3 to do the things necessary to switch the file
4 format. Whether they have a CD burner. Not
5 everybody has a CD burner.*

15:52

6 So there are -- the degree to which any
7 given person is locked in is -- just depends on a
8 bunch of stuff.

9 * What's necessary for the lock-in effect to
10 matter is that, indeed, it creates a sufficiently
11 less elastic demand curve that there is a small
12 but significant nontransitory increase in price
13 arising from the lock-in effect.*

15:52

14 Q. Is another variable in deciding whether a
15 particular person is locked in and buys an iPod
16 because of the lock-in rather than a competing
17 player that they prefer the -- the degree to which
18 they prefer the other MP3 player, in other words,
19 the stronger -- the weaker the preference for the
20 other MP3 player, the less they're locked in?

15:53

21 A. Well, yes. Obviously, how they value the
22 alternatives is relevant.

23 Q. Is it also --

24 A. I mean the reality is anybody who bought
25 an iPod, if there was a lock-in effect, anybody

15:53

1 A. Oh, I'm sorry. I'm sorry. It's late in
2 the day. Explain what we're after now.

3 Q. You understand that the purported class
4 includes both direct consumers and resellers like
5 Best Buy? 17:01

6 A. The wholesale market?

7 Q. Yes.

8 A. Yes. Remind me what I was asked again.

9 Q. Do you know whether or not you can use the
10 same regression analyses for both? 17:02

11 MS. SWEENEY: Both being resellers and
12 consumers?

13 BY MR. MITTELSTAEDT:

14 Q. Yes.

15 * A. My best guess is there's going to be two 17:02
16 regression analysis models because obviously the
17 wholesale price differs from the retail price.

18 What I -- what I need to know is how the
19 wholesale market actually works. I need documents
20 about Apple's pricing policy in the wholesale 17:02
21 market. I need transactions data in the wholesale
22 market and how I'll go about doing it -- doing
23 that part of the analysis would depend on those
24 details.

25 Let's take the simplest possible case, 17:02

1 which I doubt that it's true, but let's assume
2 that it's true. Assume that the wholesale market
3 looks exactly like the retail market, that there's
4 a posted price for each model of iPod that's 30 or
5 40 percent below the retail price and everybody 17:03
6 can buy as much as they want at that posted price.

7 In that case, the -- a product-specific
8 dummy variable whether the buyer was a wholesaler
9 would be sufficient, right. But that's almost
10 certainly not going to be true. It might be true. 17:03

11 But I suspect there are quantity discounts
12 and advance purchase discounts, and, you know,
13 special promotional discounts if you spend some
14 money on advertising we'll pay some of it. So
15 there's likely to be more complexity in the price 17:03
16 formation in the wholesale market than in the
17 retail market in which case there will probably
18 have to be two equations.

19 Q. And can you tell me anything more than --
20 more than what is in your report on what the 17:03
21 equation will look like for the wholesale --

22 A. Actually, if that's the case, it will look
23 a whole lot like the one I just did which is
24 static random access memory, static random access
25 memory, which is a different kind of case. It's a 17:04

1 price conspiracy case, but it's still the same
2 basic story, which is that the contracts
3 themselves with the -- the wholesale contracts
4 between the chip manufacturers and the people who
5 make stuff like Apple specifies things like if you 17:04
6 promise to buy X in advance so we know what our
7 production run should be, we'll give you a slight
8 discount.

9 And if you -- and then there's just
10 straightforward quantity discounts, and there's -- 17:04
11 there's other kinds of discounts, so that you have
12 to read the contracts for the large buyers to
13 figure out what the pricing policy is. And now
14 once you've done that, you can just stick some
15 variables in the regression -- the price equation 17:05
16 that take into account those contract terms and
17 you can get a price equation. *

18 Q. Okay. Let me turn to one last subject.

19 If Apple were required to license FairPlay
20 and were permitted to charge a licensing fee, 17:05
21 would you expect that that would make music more
22 expensive?

23 MS. SWEENEY: Objection. Incomplete
24 hypothetical.

25 THE WITNESS: Would I expect that that 17:05

1 integrated system."

2 A. Right.

3 MS. SWEENEY: What page?

4 BY MR. MITTELSTAEDT:

5 Q. Page 28, second paragraph. 17:19

6 What does that mean and how can economic
7 analysis determine that?

8 A. This is -- gets right to the
9 anticompetitive effect story; it's whether there
10 was, quote/unquote, a not insubstantial effect on 17:19
11 quantity arising from the tie. That's what it
12 means.

13 The economic analysis focuses on an
14 economic -- a theory-driven economic analysis of
15 the actual market in terms of quantity of output 17:19
16 of various product versus the but-for market.

17 And so the -- what economics does is in
18 the end, produce an estimate for you of what the
19 quantitative impact of the anticompetitive
20 restriction was. And a necessary condition for it 17:19
21 to be more than de minimus is, of course, market
22 power in the tying product market.

23 * Q. But, this is my problem with that: You
24 say "if a large fraction of customers buy all
25 products from the same vendor." 17:20

1 A. Right.

2 Q. You can do an economic analysis and say
3 whether they did it because they preferred all
4 those products or whether they were forced to buy
5 all the products; is that what you are saying? 17:20

6 A. The act of tying --

7 Q. By act of tying -- excuse me -- you mean
8 that the seller said I'm not going to sell you
9 product A unless you buy product B?

10 A. Right. 17:20

11 Q. So let's say 100 people buy product A and
12 B. And some of them do it because they wanted to,
13 and the others did it because they were forced to
14 against their will. What kind of economic
15 analysis can you do to tell us how many bought 17:21
16 because they wanted to and how many bought because
17 they were forced to?

18 A. You don't do it that way. I have answered
19 that before. You don't -- you don't count noses.
20 You determine whether the specific elasticity 17:21
21 demand for the iPod was made less elastic because
22 of the act of tying.

23 Q. But you don't know if there was an act of
24 tying. What you're trying to do is figure out was
25 there tying or was there a preference? 17:21

1 A. You know that an act of tying took place.
2 You don't know if it had caused anticompetitive
3 harm. *

4 Q. So what you are doing is, again, you're
5 back to the regression where you try and explain 17:21
6 away all the price difference you can and then
7 what's left over you say, ah-hah, it must be the
8 tying?

9 A. That's right. Only anticompetitive harm
10 is a broader category than just the damages, and 17:22
11 it's not the same concept. It's not the same
12 thing. So, you know, the focus in anticompetitive
13 harm is broader and different, but it's the same
14 basic idea, the same basic approach.

15 Q. And then finally at page 46, you say, "A 17:22
16 strategy of creating lock-in through technical
17 incompatibility is more attractive as the
18 installed base grows."

19 Then you talk about the iPod and you say
20 it has an estimated installed base over 110 17:22
21 million users, over 71 million of which have
22 activated iPod for use with Internet downloads.

23 A. As of the date, whenever that was.

24 Q. What do you mean 71 million have activated
25 the iPod for use with Internet downloads? 17:23

1 70 million and 110 million. She's in the 40
2 million who have bought an iPod but who are not
3 locked in.

4 Q. Where does the locked-out number come
5 from? I thought that came from the difference 17:25
6 between 110 and 71. That's what I am missing.

7 A. No. The locked-out people -- I don't --
8 you're right. I don't have a firm estimate of
9 that. The locked --

10 Q. You're doing that by market share? 17:25

11 A. Yes.

12 Q. So if Apple has twice the market share of
13 everybody else combined?

14 A. Yes. It's not quite right. It's not
15 quite right. Because what you have to do is what 17:26
16 share of the Apple people have bought from iTunes
17 versus everybody who holds another portable
18 digital player. That's the comparison.

19 ✱ Q. And, again to -- to -- I think this is
20 clear but to make sure. 17:26

21 When you say the 71 million, you're not
22 saying they, in fact, are locked in so that when
23 they need to buy another MP3 player they have to
24 buy an iPod?

25 A. They face a continuum of switching cost 17:26

1 that hinge on, A, how many files that they still
2 care about are digitally protected that they
3 bought from Apple, how sophisticated are they
4 technically to get around the system, do they own
5 a CD burner. There's a number of factors that go 17:26
6 into this. *

7 Q. All the things we talked about?

8 A. Yes. So there will be some that are just
9 a little bit locked in and some a lot locked in
10 and some in between. 17:27

11 Q. And there will be some percentage who go
12 ahead and buy a competing MP3 player because
13 they're not sufficiently locked in; right?

14 A. In principle that could happen, yes. I am
15 sure there are people out there, although I don't 17:27
16 know who they are, that bought an iPod and then
17 subsequently bought something else. But, you
18 know, I don't know what the magnitude of that
19 number is.

20 Q. And you can't tell, you don't know? 17:27
21 You're now --

22 A. Well --

23 Q. Just a second. You're not going to figure
24 out and you could care less how many people are in
25 whichever category? 17:27