EXHIBIT C

UNITED STATES DISTRICT COURT FOR THE

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

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COPY

THE APPLE iPOD iTUNES ANTI-TRUST LITIGATION,

No. C-050037-JW(RS)

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VIDEOTAPED

DEPOSITION OF ROGER G. NOLL, Ph.D.

Taken before EARLY K. LANGLEY, RPR, RMR

CSR No. 3537

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regress retail iPod prices?

A. He proposes that as one possibility, yes.

Q. Did you read Dr. French's testimony at his deposition?

A. I did. But it was a long time ago and I don't remember it. 10:11

Q. Did you read his testimony from the evidentiary hearing?

A. Yes, I did. I -- again, it was a long time ago and I don't remember it. 10:11

Q. Okay. Let me hand you an object, says "Martha Bursch" on the back.

Do you recognize that?

A. Yeah. It's an iPod.

Q. And do you know what generation iPod that is? 10:11

A. Do I know what generation it is?

Q. Yes.

A. What do you mean by "generation"? Do you mean the date or do you mean the model? 10:11

Q. Either.

A. Well, I think -- I believe -- I'm not certain, but I believe it's a Touch -- I have never actually seen this particular version, but I believe it's a Touch. But I'm not certain. 10:12

that -- excuse me, that was the Mini. That was what's now called the Nano.

I -- I honestly have not attempted to memorize by look what each model looks like, all right? I've seen them all, I've read their specs, but I -- I don't remember when each was introduced. 10:13

Q. Have you ever used one?

A. No.

Q. What was the price of the first iPod that was offered? 10:13

A. I don't remember. It's on the -- it's in the evidence, but I don't remember what it is.

Q. When did Apple first change the -- the price of the first generation iPod? 10:14

MS. SWEENEY: I'm going to object to this -- this line of questioning. If you have some documents you want to show Professor Noll, that's one thing, but if you're just going to ask him to, you know, try and recite from memory prices that are part of the evidentiary record, that's another thing. 10:14

THE WITNESS: I have not attempted to memorize the dates at which prices of iPods were posted. I know some recent history because I 10:14

regression analysis?

A. Statistical significance is about fraction of variance explained. If there are very few retail price changes, it's very likely I can explain the difference in prices very easily. The question has sort of got statistics backgrounds. The issue of statistical significance about a regression becomes more difficult the more variation you have. 10:24

If the issue is statistical significance of a particular coefficient, obviously the simpler the pricing system, the fewer variables it takes to explain prices. Indeed, a -- a very small number may be able to explain prices if there isn't much variation. 10:24

Q. Do you know how many price changes for iPods there were in the before period?

MS. SWEENEY: Objection. Asked and answered. It's another price memory test.

THE WITNESS: What I know is that prices, retail prices, change rarely on the Apple Store. I know that to be true. And whether the price changes are once a year or twice a year at any given year, I don't know, all right? I don't remember. 10:25 10:25

But I know that the number of price changes is relatively infrequent and that they typically are announced in press releases, all right?

BY MR. MITTELSTAEDT:

Q. You -- you say the before period is before April 2003; is that correct?

A. That's correct.

Q. At some point -- strike that.

When you collected retail price data, as you've testified -- 10:25

A. Uh-huh.

Q. -- did you do anything with it?

A. What do you mean did I do anything with it? I don't understand the question. 10:26

Q. Other than -- other than collect it, did you do anything with it?

A. What -- unless you -- if you want to ask me any specific question about what I might do with it -- I mean, I don't know how to answer did I do anything with it. I don't understand what you're after. 10:26

What -- what do you want to know?

Q. Did you read it?

A. Of course. How could I collect the data 10:26

without reading it? I mean, I -- that would be physiologically impossible.

Q. Okay. So one thing you did was read it?

A. Yes.

Q. Did you make any notes when you read it? 10:26

A. No.

Q. Did you draw up any kind of chart based on the information?

A. No.

Q. Did you count to yourself how many price changes there were before April 2003? 10:26

A. I didn't count the specific number. I noted the point that I just stated, which is there aren't very many price -- that they don't have frequent retail price changes. 10:27

But I didn't -- but I also at that point checked the retailers and found that that's not true for retailers. So.

Q. Why does it matter to you --

A. I was curious. 10:27

Q. What Amazon.com charged and how often they changed their prices?

A. I was curious. You asked me what I did. Do I -- you know, I was curious. Is it the case, for example, that i -- that Apple has minimum 10:27

retail price requirements? Does it have anything else? I wasn't sure.

I was -- I thought it was interesting that there were so few price changes and I checked to see if that's, in fact, the case in other retail outlets. And it's not. 10:27

In fact, one of the puzzles that I ended up with was why anybody would buy anything from the Apple Store to begin with because the prices are generally higher. 10:27

Q. Can you think of any reason in economics why anybody would buy a higher priced iPod at an Apple Store rather than going to Amazon.com?

A. I can think of reasons, but I don't know whether they're true. 10:28

Q. What's a plausible reason?

A. They may regard themselves as buying from a place that is going to be more trustworthy with respect to bad product of some kind, but.

Or they may just like the -- the convenience of doing it there in some way. I don't know. They may have bought 15 things, 13 of which -- there are some things you can only buy off the Apple Store. Like, there's one particular color of iPod Nano that you can only get from 10:28 10:28

Apple. They don't -- they don't sell it through other distributors. It's exactly the same price as all the others, but you have to buy it from them.

So there can be -- there can be reasons that are product-specific, that it's a particular color that is only available from the store. Or it may be you're buying a bunch of things you can only buy from the store. And, for convenience sake, you just add the iPod to it. So, I mean, there could be many reasons why somebody would do it. But that's the -- 10:28 10:29

Q. Was one of the reasons you collected these price changes for the before period to see how many there were? 10:29

A. No. The reason I -- I -- I checked the prices was to -- to assure myself that the data were there. That's all.

Q. Did you -- have you reached any conclusion on whether there are enough price changes in the before period to do a regression analysis if you decide you want to do one? 10:29

A. On retail price alone?

Q. Yes.

A. I probably -- as I said before, it's 10:29

plausible, and indeed possible, that a regression analysis will not be used. It's also plausible, and possible, that the -- that the price regression for retail and wholesale will be the same equation, all right? 10:29

So, again, I can't answer the question until I have all the data and find out if a single equation that's both wholesale and retail works.

Q. Up to this point, have you reached a conclusion, not on whether or not you're going to 10:30 do a regression analysis, but simply on whether there are enough price changes in the before period to do a regression analysis based on the before/during approach, if you decide that's what you want to do? 10:30

A. Let me add one more possibility which I think is a likely possibility, which is that the object of the regression analysis would be a margin analysis as opposed to a simple price analysis because I -- it's possible there's more 10:30 changes in transactions prices than there are in retail prices so that the -- the -- using wholesale prices as -- as an indicator of opportunity cost, one -- one approach would be to do a regression on margin because it's perfectly 10:31

BY MR. MITTELSTAEDT:

Q. And do you have any information on when it was first offered for sale or what price or when Apple changed its price?

MS. SWEENEY: Same objections. 11:44

THE WITNESS: If you want me to drive back to my office, I can provide you all the information about when every product was introduced.

MS. SWEENEY: And same objections to 11:44 Mr. Mittelstaedt testifying.

BY MR. MITTELSTAEDT:

Q. Next, let me show you another device.

Would you look at that and tell us if you can identify it? 11:44

MS. SWEENEY: Same objection.

THE WITNESS: What does it say here? I can't -- I don't remember what it is. I mean, it's an iPod, obviously, but I don't remember what the model number is, what the model is. 11:44

BY MR. MITTELSTAEDT:

Q. Any information about when it was introduced, its price?

MS. SWEENEY: Same objections.

THE WITNESS: Nope. 11:44

BY MR. MITTELSTAEDT

Q. Okay. And, finally, I'll show you this.

MS. SWEENEY: And I object to Mr. Mittelstaedt testifying again to the video camera, and I object to this line of questioning. 11:45

BY MR. MITTELSTAEDT:

Q. Would you look at that, and can you tell us what that is?

MS. SWEENEY: Same objection.

THE WITNESS: This is, I think they call 11:45 it a "Clip," and I don't know when it was introduced or how much it costs.

BY MR. MITTELSTAEDT:

Q. Now, your -- your proposal is to take information about price changes and costs and 11:45 technical specifications for the original iPod, the first one I showed you --

A. Uh-huh.

Q. -- and tell us what the price of the last one I showed you, which you referred to as the 11:45 Clip, what the price of that would have been today if Apple had licensed FairPlay to a couple of competitors; is that correct?

A. That's correct.

Q. Are you making any assumption about the 11:46

timing of when Apple would have licensed FairPlay in the but-for world?

A. The assumption in the but-for world is that the anticompetitive behavior never would have happened, so it would have been in the very beginning. 11:46

Q. So your assumption is Apple would have licensed FairPlay to a couple of competitors in April of 2003?

A. A couple of competitors is not the right number. As you know from my prior deposition where we talked about this for several pages, two is insufficient. The right number is probably about four or five. 11:46

Q. With that clarification, are you saying the but-for world Apple would have licensed FairPlay to four or five competitors as of April 2003; is that correct? 11:46

A. What I -- no, it's not correct because it completely mischaracterizes what I said, and I'm not going to let you put words in my mouth. That's not what I said in my prior deposition. 11:47

Q. Well, what is your assumption about when Apple would have licensed FairPlay to four or five competitors in the but-for world that you're 11:47

trying to model?

A. As I said before, the but-for world starts off with the hypothesis that Apple is not a vertically integrated firm, and asked the question what would the strategy be of a firm that's not vertically integrated into MP3 players, and that -- and then the answer to that question, of course, is they would have wanted to license the formats, whether Digital Rights Management or the actual MP3 version, the version of the MP3 format, to as many portable digital media players as they thought was necessary to maximize the sales of portable digital media players so that, in fact, they'd maximize the number of people who wanted to buy downloads from the iTunes Music Store. 11:47 11:47 11:48

Q. All I'm trying to ask is: In your but-for world that you're trying to model, when would those licenses have been made?

A. They would have had to have been made at -- before the actual launch of the store because there would have been no iPod-like product out there to take advantage of them. 11:48

So they would have licensed them very early on. In fact, they may well have licensed them earlier, you know, just to make certain that 11:48

people had enough time to develop a portable digital media player in time for the launch of the store.

Q. But you've told me now that they would have licensed them very early on, and then you say they may well have licensed them earlier. 11:48

What I'm trying to find out is: In your but-for world, when?

A. Because --

MS. SWEENEY: Object. You've asked and answered -- 11:49

THE WITNESS: The data is irrelevant.

MS. SWEENEY: -- this question several times.

THE WITNESS: The data is irrelevant. The relevant fact is, if they had not been vertically integrated into portable digital media players, they would have engaged in widespread licensing to maximize the -- the degree of competition in portable digital media players for the purpose of getting those prices as low as possible for the purpose of getting the demand for downloads from their site to be as great as possible. 11:49 11:49

So the number and the date isn't the point. The point is, when portable digital media 11:49

players were being used for digital downloads, there would have been multiple portable digital media players available because that would have been in the interest of Apple as a -- a seller of downloads. 11:49

BY MR. MITTELSTAEDT:

Q. Does it matter to your analysis whether those licenses would have been made by Apple before 2001?

A. The date is irrelevant as long as it's soon enough that the portable digital media player industry would have been competitive at the point in time when it came about that iTMS was launched. 11:50

Q. So you're saying in the but-for world licenses would have been made by Apple sufficiently in advance of April 2003 so that other manufacturers could have been making as of April 2003 portable digital players that worked as well with Apple's music store as iPods did? 11:50

A. I didn't say that. 11:51

Q. Well, do you disagree with that?

A. I think the statement you just made had -- bears no relationship to anything in either of my reports or in any question you asked me. The issue about "as good as iPod" is not at issue 11:51

determined far more by the number of observations. So if you have endless numbers of transactions records -- I've -- I've seen numerous regressions. My students produce them all the time.

MR. MITTELSTAEDT: Do we need to change the tape? 12:00

Go ahead.

THE WITNESS: I've seen numerous regressions from my students where they get R squares of less than .1 but highly significant coefficients on variables because they have thousands upon thousands upon thousands of observations. 12:00

Detecting a variable's effect when it has a small percentage of the variance that explains is simply a function of how many observations you have. And if you have lots of observations, you'll usually detect it. 12:00

BY MR. MITTELSTAEDT:

Q. Is there any theoretical basis you know of to predict what the relative impact of the particular conduct that's at issue in this case is going to have compared with the impact on price of the other factors you mentioned earlier: cost, life cycle, technical characteristic changes? 12:00 12:01

A. As I said, as a theoretical matter, the effect could be zero. This isn't a theoretical issue. It's a practical question. What does the regression actually show and does it have a specification error? 12:01

Q. Have you -- have you, yourself, or anyone working under your direction ever actually calculated damages using a regression analysis in any of the three methods that you've proposed here? 12:02

A. Yes.

Q. In what cases?

A. Well, there's -- there's Flash.

Q. Let me just stop you so you understand the question. 12:02

A. Oh, wait. Wait a minute. Wait a minute. You're right. Flash, no one's ever actually calculated damages yet. I stand corrected.

DRAM, Dynamic Random Access Memory. Tableware. High speed photocopier service. I mean, there's -- I mean, there's a -- those are just off the top of my head. 12:02

Q. Do you have copies of your work in -- the regression that calculated damages in DRAM?

A. I do not have a copy of it, but one of the 12:02

before/after method and then the before/after method was not, in fact, used.

I'm not -- I'm aware of some cases in which other methods besides before/after were used, but it's the most common form of damage estimation is before/after. 13:29

Q. Have you ever seen a case where you've concluded that technological change was too rapid and too complete so that the before/after temporal method would not work? 13:30

A. I have never seen a case. I've seen many cases in which technological progress was more rapid and more complicated than this one, and I've never seen one in which someone proposed it that it wasn't actually done. I'm not aware of any. 13:30

And this included -- and, moreover, there's an economics literature about hedonic price regressions of electronic products. And it's successful.

* Q. Didn't you conclude in Flash Memory that trying to compare the price formulation process in 1997 to 1998 with prices after the boom in small consumer electronic appliances is unlikely to produce reliable results? 13:30

A. That's not what I said. What I said was 13:30

it's a problem. I said, indeed the second report that I wrote, the intertemporal price regression worked.

Q. How did you overcome the problem of -- of rapid technological change in -- in Flash? 13:31

A. More data. More specification. Look at it this -- the notion of technological change is not inimical to the estimation of supply demand equations. The underlying process is still there.

And the issue is, can you measure 13:31 characteristics in a product-differentiated market in such a way that you can capture the effects of changes in product attributes? Usually you can.

Q. You told me before lunch that you might not do a regression here because it might turn out 13:32 to be so simple. I want to ask you if -- if you -- let me give you two products. Giving you the original iPod and an iPod Shuffle.

Do you agree that the iPod Shuffle -- incidentally, you were referring to that as the 13:32 Click before.

A. Yeah. That's what people call it in common parlance. It's a Shuffle is the model name, yes.

Q. Who calls it a Click? 13:32

Q. Would you expect the number of products for sale at the APS store to have any impact on iPod demand?

A. It might. We could put a variable in a regression, number of products on the APS store, and see if it turns out to be significant. 13:58

Q. Do you know anything about how the iPod in 2001 connected to the host computer?

MS. SWEENEY: Objection. Beyond the scope of the reply declaration, beyond the scope of this deposition. 13:58

THE WITNESS: I mentioned before a change in docking and porting.

MR. MITTELSTAEDT: Docking and porting.

THE WITNESS: And I -- but I don't remember when or precisely what the nature of the change was. I mean, you can do things wirelessly now that you couldn't do wirelessly in the past, but precisely when each change took place, I don't know. I just know they took place. 13:58

BY MR. MITTELSTAEDT:

Q. But do you know anything about the high -- how the iPod in 2001 connected to the host computer?

MS. SWEENEY: Same objection. Asked and 13:59

answered.

THE WITNESS: I knew at one point when I was writing my first report. But I don't want try to testify from memory what it is now. I would -- I just don't remember. 13:59

BY MR. MITTELSTAEDT:

Q. Did the iPod ever allow for USB connectivity?

MS. SWEENEY: Objection. Beyond the scope of the reply declaration. 13:59

MR. MITTELSTAEDT: I said I'd give you a standing objection to that.

MS. SWEENEY: I don't understand how that works, Bob --

MR. MITTELSTAEDT: If I --

MS. SWEENEY: -- if I want to object to particular questions not just to every question that you ask.

MR. MITTELSTAEDT: But it's even better. You can object to every question on that ground. 13:59 If you have an additional ground, you should state that, but on the "beyond the scope," it's as if -- I am agreeing, it's as if you say that in response to every question, just to save time.

THE WITNESS: Yes. IPods have connected 13:59

to a USB port on a computer at some point in history.

BY MR. MITTELSTAEDT:

Q. Would you expect that would influence demand for iPod? 13:59

A. I don't know whether it would or not. Maybe, maybe not.

Q. It would be something you'd want to test?

A. In principle, although I would be -- I would be surprised if that mattered a great deal, 14:00 but, yes, we could test that.

Q. Well, what does a -- what is the -- why do you say that, that you'd be surprised if -- if USB connectivity mattered a great deal?

A. Because that's not an issue that 14:00 differentiates this product from any other. All consumer electronics products have moved from USB-wired connections to wireless connections. Even a mouse. So this is nothing unusual. This is standard technological change that's affected 14:00 all products. There's nothing unique about iPods.

Q. Because you say iPods have moved from USB-wired connections to wireless connections with the host computer?

A. Yes. Just like everything else has. 14:00

Q. And so your belief now is that the way you synch an iPod with your host computer is wireless?

A. It can be, I think. If it's not, it's because I'm confusing it with another product that I know you can, like a PDA and like a mouse. 14:01

Q. I want you to assume that -- I want you to assume that originally iPods connected to the host computer only through firewire and then at some point they could also connect through USB ports.

A. Yes. 14:01

Q. Can you think of any reason why that change would increase iPod demand?

A. It may. I doubt it. It may -- it may have affected cost, affected price, and affected sales. We'd need data to be able to see whether 14:01 that's true. The -- there's -- most all of these questions have the form of, can you as a matter of economic theory predict that some particular characteristic change affects demand, and economic theory cannot inform that. It has to be 14:01 empirical.

THE WITNESS: Can I take a short break?

MR. MITTELSTAEDT: Sure.

THE VIDEOGRAPHER: We are going off the record at 2:02 p.m. 14:01

(Break taken.)

THE VIDEOGRAPHER: We are going back on the record. The time is 2:06 p.m.

BY MR. MITTELSTAEDT:

Q. Do you have any documents that reflect your use of one of -- of the proposed methods of proving damages referred to in your report? 14:06

MS. SWEENEY: I'm going to object as asked and answered and also on the grounds that you could have gone, and you did, in fact, go into this line of questioning in the first deposition of Professor Noll following his original report. 14:06

You've gone very far afield today and going way beyond the scope of his reply. And I -- as we discussed, today's deposition is limited to Professor Noll's reply declaration. 14:06

MR. MITTELSTAEDT: Which, you know, in all fairness is 56 pages, and it refers to a whole lot of things, including everything that I've asked about so far today. 14:06

BY MR. MITTELSTAEDT:

Q. So the question is, is you -- as of today, not as of your last deposition, do you have any documents that reflect your use of one of the proposed methods that you referred to in your 14:06

strike that.

When you were meeting with counsel and thinking about your first report, before writing the report, did you ever intend during that period to actually run a regression analysis as part of your report as opposed to proposing a method? 14:16

A. Had the data been made available, I would have run a regression.

Q. And what data did you ask counsel to provide? 14:16

A. All the data that I've -- we've been talking about at my two depositions that are in my two reports. I wanted complete information about transactions and I wanted complete information about pricing policies and I wanted complete information about the qualitative characteristics of the components of all the models of iPods. 14:16

And they said, no, that's not going to happen.

We had a long conversation where I said there's two ways that a court goes on class certification. 14:16

One is, it's after all the discovery and it's basically a component of summary judgment and -- and -- where you're basically proving 14:16

you've got a damages method.

And the other way is you try to save the cost of lots of discovery by simply talking in general ways about the methodology and whether the data exists to perform it. 14:16

And they said in this case, we'll try for the big stuff, and -- but, as it turns out, you don't get it, all you get is -- is some summary stuff about average margins over time and some summary stuff about quantities of sales, and 14:17 that's it.

Q. Did you ever provide an -- an estimate to counsel on what it would cost to actually run the regression analysis that you were proposing?

A. No. But I -- I can -- I know that it'd 14:17 take a long time and at serious cost.

It the -- John Conner's article about damage estimation that the -- reports on the basis of some survey he did, that it typically takes four to six months of effort to produce a valid 14:17 regression analysis where you've actually tested whether you have specification errors.

You first of all have to get the data, then you have to clean it up, and that usually requires depositions from people of the defendant 14:18

iPods sold, the revenue, and the standard manufacturing cost?

A. Yes.

Q. Have you done any analysis of that?

A. I have looked at it and examined it and, indeed, I referenced it in my first report. And there have been subsequent updates to that since my first report which are somewhat more elaborate, but it's basically the same material. 14:22

Q. Okay. You've done research on the concept of coolness since your last deposition; correct? 14:22

A. Oh, yes. That was an exciting research project.

Q. Are you being facetious?

A. I am being completely facetious. That is the most ridiculous literature I have ever read in my entire life. And the note -- the idea that a professional economist would take that seriously and write an expert report that takes it seriously just is astonishing to me. It is a complete joke. 14:22

Q. And when you wrote your second report, were you treating it as a joke?

A. I concluded it was a joke after spending several days doing Internet searches trying to track down what it meant. I mean, not -- not in 14:23

real-time several days but -- but shots at the computer for an hour or so for several days and tracking down what it really was and discovering where it came from and how it's used and how it's measured. It's just a joke. 14:23

Q. When you say in your report that in short, cool, in quotes, is about appealing to young people, were you being sarcastic?

A. No. That's what the inventor of the Global Cool Hunt says it is and as explained in 14:23 that report.

Q. Do you think that's where the concept of coolness comes from?

A. I think where the concept of coolness comes from is reviews to have consumer electronics 14:23 products dating all the back to the 1990s that call things cool. Among the products that have been called cool is Windows 95, all right?

In other words, there is nothing Apple iPod-specific about the term. It has been -- it 14:24 was used to describe the iPod a week before the first iPod was released. So -- and it was -- I just read a -- a review two days ago of Windows 7.0 that called it cool. This is a common throwaway terminology in the popular press to 14:24

Q. When you say in your report coolness is derived from attractive and functional design, is that something you're endorsing or are you simply meaning to say without saying it that that's what Steve Jobs says? 14:25

A. No. I'm saying, on the basis of my review of all of the publications I could find about coolness applied to electronics products, that's what I conclude on the basis of reading that material what it means. 14:26

Q. Okay. Do you think that attractive functional design can plausibly increase the demand for a product?

A. Of course it can. But that's a design variable. It's not cool. Right? I mean, it's -- 14:26 it's -- it's just nominalism. It's putting a word on something where you can't possibly tell in advance whether the word is going to apply to a particular product or not. You can't look at a product and say oh, that's 14.3 cools. That's not 14:26 what it is.

Q. Okay. You say you can't do that in advance. How about after you've had some experience in the market? Are -- are you rejecting the concept that some products are cool 14:26

describe consumer electronics products.

Q. When you wrote cool is about appealing to young people...

A. That's correct.

Q. You wrote that and you believe that to be true? 14:24

A. I believe that coolness is about trendiness and that the method -- the only method of measuring it I've ever seen is through young people. 14:24

Q. Okay.

A. Young adults.

Q. Well, do you believe that coolness is derived from attractive functional design?

A. That's what Steve Jobs says. 14:25

Q. I'm asking you about yourself.

Do you believe that coolness is derived from attractive functional design?

A. Let me take back a step. I think the concept of coolness as a useful economic concept 14:25 in analyzing a product is completely zero. It is not something an economist needs to take seriously. It is hype and sizzle, and I -- I just -- I think I have adequately demonstrated in my report that it is not worth an adult's time. 14:25

and others aren't, and that that affects their demand?

A. It's obvious that some people like to call some products cool. It -- could we get a bunch of people in the room and have them agree what was cool and what was not? I see no evidence that we could. 14:27

Q. But do you think the perception that a product is cool compared to another product affects demand? 14:27

A. No, because I see no evidence that it does, and, indeed, it's explicitly contradicted in the stuff that I -- I cited.

Q. Okay. Do you think that functionality is one of the sources of coolness? 14:27

A. I surveyed the literature. They said that it boils down to technological innovation and functionality. That's already in the regression. So I don't need to worry about it anymore.

Q. Do you accept the concept that functionality is a source of a product being cool? 14:28

A. Well, if I didn't, I wouldn't put qualitative attributes of a product in the price regression. And I -- the -- the issue is whether coolness is some independent concept or whether 14:28

of iPods have fallen once we went to a complete Digital Rights Management-free environment. That's -- that's -- it's a -- it's a more serious analysis of that fact that would be how you'd address that question. 15:52

Q. Are you familiar with the statement in Tirole, *Theory of Industrial Organization*, quote: The price of the complementary or tied good is higher under Italian sales; whereas, the price of the basic tie-in good is lower? 15:52

A. Well, he says that under a particular assumption about what the nature of the complementarity is. You can, as I said before, you can create a model in which the price effect is as you described. You could also create a 15:52 model at which the price effect is the opposite of what you described, which is the paper that I referenced by Riordan.

What we know now to be the case after lots of research in the 1990s, is that the effect can 15:53 go either way; that it's not a question of economic theory how the effect goes.

Q. Assume that music prices would be higher in the but-for world.

Do you agree that means that heavier users 15:53

of iTunes Music Store may do better in -- with the alleged anticompetitive conduct than in the but-for world?

A. Maybe or maybe not. It depends what the price effect was. 15:53

You know, we need some facts here. What are -- what is -- how many downloads does the most intensive user produce and what is the estimated price effect? And the -- if the product of those two is greater than the price differential, then 15:53 they could, in principle, be better off.

Q. The price differential for iPods?

A. Yes. On the one hand, you have a price differential. All right? For iPods. IPods have a higher price. On the other hand, you're 15:54 hypothesizing that the price of music is low.

And so then the question is: Is it how much lower? Is it one cent or ten cents or 30 cents?

Q. Is -- does your regression analysis make 15:54 any assumptions about whether an increase in demand for a product will always lead to a price increase?

A. Sometimes it leads to a price increase, sometimes it leads to a price decrease. It 15:54

Q. If you use the market method to compare iPods with a single competitive product, you would have the same problem as you would have in the competitive product yardstick method in that you have to identify a suitable comparative product; right? 16:27

A. As I said in the report, that's one of the reasons you probably wouldn't use a single product. What you would do is use a group of products and look at the variation in market conditions among them and the variation of markups and try to use that variation to give you insight about what you think the benchmark -- the reference products' margins are. 16:27

Q. But if the referenced products you're choosing are not comparable, any more comparable to the iPod than the single yardstick product you would have used under the yardstick method, the markup method isn't made more reliable simply by choosing more products, is it? 16:27

A. The -- they're different methods. You're suffering from the delusion of your expert to say that the markup method and the yardstick method are the same thing, and that's not the same -- that's not true, okay? 16:28

The -- the markup method is a distinct method and it -- it -- it has the strength and the weakness that the premise of it is that you can identify a group of things which are not identical, which have different characteristics, 16:28
but that there's commonality across them in such a way that if you identify leading firms in a group of markets, their performance, you could make the case, a plausible, more likely than not case, that this product would have been in that category but 16:28
for the acts of -- of an incumbent monopolist.

Now, how do you that is different than how you do a yardstick method. All right? The yardstick is more like the before/after test where you're doing regressions and things like that to 16:28
estimate price equations and show that they come out different.

That's not what markup does. What markup does is look at the -- a set of products that have similar R&D intensity, that have similar scale, 16:29
similar production technologies, and make the analogy that the markups in those industries, on average, of leading firms, are a good benchmark for the but-for world in this market. And --

Q. So do you use a regression analysis for 16:29

the markup method?

A. Usually not.

Q. And do you --

A. But you might. I mean, you don't want to preclude it. But you -- it's -- it's not likely. 16:29
But you might.

Q. And do you need to examine technical details of the products that you're using for your markup methods?

A. You -- yeah. They -- they should be 16:30
products that have the same kind of components like a microprocessor, a flash memory, LCD display, some buttons to push, you know, a similar kind of circuit board.

Yeah. You're -- you're looking for things 16:30
that have the same basic attributes as products that are based on the same technologies and have similar rates of product change that -- where people are introducing new products every year, that kind of thing. 16:30

Q. Okay. And so you find those products, you see what their markup is, and you -- and then what do you do; do you compare Apple's markup with the average of all those companies or with the highest or with the lowest? 16:30

A. Well, you could do that, but I think that would be stupid, all right? I think what you would want to do is -- is see if you could develop explanations for whatever variance you observed, all right, in the -- in the set of -- of comparative products and see if you could find one that you think is for one or two or three that are more plausible indicators of what would have happened in the case of the iPod. 16:30

But, you know, until you get at the -- the nuts and bolts of this and get all the information about what their scale is, how many of them they sell, what their costs look like, what their components look like, you really can't make an argument that this is really similar to that. 16:31 16:31

Q. Do -- do you have a leading candidate for which company you're going to compare iPod margins with?

A. The -- if -- if the product were -- if there were -- for example, one -- one product would be 3G cell phones, okay? That's a potential product, and there what you do is decide what firm would be the candidate for the leading edge firm in 3G cell phones. 16:31

Q. And which one's that? 16:31

A. Until I do the analysis I don't know for sure.

Q. Do you need data from Apple to do that analysis?

A. What you -- what you need from that -- you need two things. You need -- you need information about market shares and product reviews to decide which products you're going to look at. And then you need discovery from those companies, which is the hard part, of course. 16:32

Q. Have you done the first step?

A. No. I -- what -- what I was in the process of explaining to you is who the candidates were, the very first one, and you interrupted me.

Q. Okay. But -- let's just take that one unless you want to finish your answer. I'm just trying to speed this up. 16:32

A. No. I --

MS. SWEENEY: Objection. Can -- wait a sec. I'm not sure what the question is. I think that there's question fragments floating around here, and... 16:32

MR. MITTELSTAEDT: Fair enough.

BY MR. MITTELSTAEDT:

Q. Let's just take the cell phone company. 16:32

You said you need information about market share and product reviews.

Have you gathered market share data and product reviews to decide what products you're going to look at? 16:33

A. Not in a systematic way because I can't go to the next step until I get the actual information and see if it's a reasonable comparison.

But I know -- I know enough about some of these other products to know that there are leaders and there are followers. There are people who get good reviews and people who get bad reviews. 16:33

So, I mean, I know how to do it and I can cite where the information is. But there's no point in going beyond that, because I don't have enough information to know if it really makes sense to -- to -- to do it, to even do this method to begin with from -- as a better method than -- that one of the others, in particular, the before/after method which is, I think, the one that's going to be used. My guess. 16:33 16:33

Q. But let's just focus on this markup method. 16:33