EXHIBIT 6

UNEDITED DRAFT TRANSCRIPT

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(In Re: Apple, Inc. vs. Motorola, Inc)

(Testimony of: Leonard Cimini, Ph.D.)

(Taken on: July 13, 2011)

THE VIDEOGRAPHER: This is the videotaped deposition of Dr. Leonard Cimini, taken by the defendant in the matter of Apple, Inc., and NeXT Software, Inc., a/k/a NeXT

Computer, Inc., plaintiffs and counterclaim defendants, versus Motorola Inc. and MotorolaMobility, Inc., defendants and counterclaim plaintiffs, in and for the United States District Court for the Western District of Wisconsin, case number 10-CV-662.

This deposition is being held at Morris Nichols Arsht & Tunnell, Wilmington, Delaware. We're going on the record on July 13, 2011, at approximately 11 a.m.

The court reporter is Juli LaBadia from the firm of Wilcox & Fetzer, Wilmington, Delaware. My name is Lindsay DuPhily, I'm the videotape specialist of Discovery Video Services, in association with Wilcox & Fetzer.

Counsel will now introduce themselves and then the court reporter will swear in the witness.

MR. WEINSTEIN: I'm Marc Weinstein of Quinn Emmanuel, representing Motorola.

MR. HASLAM: Bob Haslam, Covington & Burling, representing Apple Inc. and NeXT.

LEONARD CIMINI, Ph.D.

The witness herein, having first been duly sworn on oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. WEINSTEIN:

Q. Okay. Thank you for coming this morning. Could you just give me your full name and the

spelling.
A. Leonard Cimini. Last name C-i-m-i-n-i.
Q. And just confirm that you understand you're under oath?
A. Yes.
Q. That this is no different than testifying in front of the judge in a court?
A. Yes.
Q. And just to confirm, also, there's no reason that you are impaired in any way this morning in giving your testimony? There's no medication or anything that --
A. No.
Q. Okay. Have you been deposed before?

things that you have researched, and worked on. First, can you just tell me a little bit about your Ph.D.? What was the focus of that?
A. My Ph.D. was on -- in the broad sense, detection and estimation theory. And it was specifically on robust detection and estimation. So, the gist of that is that you try to -- when you design a system, you don't actually know what the environment is like. You make a guess. And if you design your system based on your guess, you're often quite wrong. And the system degrades rapidly.
So, you design it based on sort of a class of guesses.
Q. Okay.
A. And that's what my -- it was mainly on the

title, it doesn't sound like that. It's sum results and quantization in filtering and detection.

Q. And your first job after getting your Ph.D. was with AT&T?

A. Yes.

Q. And please tell me the things you, in your initial role there, what are the things you worked on?

A. My -- I worked in a group that did cellular systems engineering. This is before there were cellular systems.

Q. And the timing of that was?

A. April, 1982.

Q. Okay. And what did you do for cellular systems engineering?

A. My -- my job, I worked in a forward-looking radio group. We didn't call it wireless. It was radio then.

Q. Uh-huh.

A. And my job was next generation cellular. So we didn't have a first, but mine was the next, which would be digital cellular. And my job was to determine what modulation techniques should be used. So I worked on a technology called OFDM, and proposed that for the next generation.

Q. Can you explain OFDM.

A. So, OFDM is what's used in Wi-fi in 802.11 today.

Q. Uh-huh.

A. And in many systems.
Q. What other systems is it used in?

A. WiMax. WiMax is sort of a smaller distance cellular type system that's popular especially in Korea. It's called WiBro there, for broadband.
Q. Uh-huh.
A. And the main problem with transmitting at higher bit rates is the fact that the signal gets to the destination by multiple paths. So when it arrives, it has spread your pulse, because they arrive at different times, these different paths.
Q. Uh-huh.
A. And so, what happens is your pulse spreads into the next pulse. This is called inner symbol interference. And that's the main limitation in transmitting at higher bit rates.
So, what OFDM does, is it's essentially the same as saying if I have a wire that allows me to transmit one megabit per second.
Q. Uh-huh.
A. If I want to transmit 10 megabits per second, I take 10 wires and I put them together. And that's what OFDM is. Except the wires are not wires. They're frequencies. They're

frequency bands. So OFDM stands for orthogonal frequency division and multiplexing. And in 1982 it couldn't be built, even at very low rates.

And so, we -- we gave up on that technology. Until the late '80s and early '90s, when DSP technology progressed enough that we could build it.

Q. And that's digital signal processing?

A. Yes. 1982 digital signal processors were very, very new.

Q. Okay. And so, this was done in development throughout the early, mid, and late '80s?

A. That was from 1982 to 1985.

Q. Okay.

A. And then in 1985, I moved to the research area at Bell Labs, and worked on fiberoptic communications for five years.

And then in 1990, I went back to working on radio wireless systems. Both cellular -- at that point, it would be 3G systems.

Q. Uh-huh.

A. Although they weren't called that then,

either. And in building systems, you know, wi-fi, 802.11 type systems. And I did that until 2002 when AT&T downsized, and I came to the University of Delaware.

Q. And in the U.S., what systems use OFDM?

A. 80 -- the initial one was 802.11A. But 802.11, the current version, 802.11G, 802.11N, and the newer systems, which will come out later, 802.11AC. They all use OFDM and WiMax, which is

802.16. 802.16. I don't know how many WiMax systems are deployed in the United States.

Q. And is OFDM used for any other?

A. OFDM is part of the third --

Q. That's what --

A. -- generation cellular systems. But only for the down link. So, from the base station to the mobile units. And only in some forms of it.

Q. Okay. And then you've now been at Delaware since '92 as a professor?

A. 2002.

Q. 2002.

A. Yes.

Q. Is and what other topics that you teach?

A. Mostly communications. So I teach a

graduate course in digital communications. I teach an undergraduate course, senior level, in communication systems. And I teach a sophomore level course that's called signals and systems. It's the basic -- what are called linear time and variance systems.

Q. I'm familiar with that course.

A. Okay. Everyone has to take that course.

Q. Yes.

A. It's a required course.

Q. Yes. Okay. Is there any cellular system around the world that uses OFDM?

A. Not at the present time.

Q. Okay. I'd like to introduce as Cimini Exhibit Number 2, this is -- sorry.

(Cimini Exhibit 2 marked for identification)

MR. HASLAM: I've got a copy, thanks.

MR. WEINSTEIN: Okay. You bet.

BY MR. WEINSTEIN:

Q. This is Dr. Cimini's declaration that was submitted as part of Apple's opening claim construction brief. Okay. If you would turn to

page 2.

A. Yup.

Q. In paragraph 9, you said in preparing this declaration, I have extensively reviewed various materials, including the '559 patent and its file history. Can you tell me what other materials that you referred to?

A. For this dec -- for making this declaration?

Q. Yes.

A. Just the '559 patent and its file history.

Q. So if the -- any statement that you've made in the declaration, if it was not from the '559 patent or the file history, was it just based on your general knowledge?

A. Yes.

Q. So there were no other technical papers or books or documents that you?

A. Not in writing this declaration.

Q. Were there any discussions you had with other professors or engineers in helping to

prepare the dec?
A. No.
Q. Did you, in fact, write the declaration

yourself?
A. The Covington attorneys and I wrote the patent -- wrote the declaration together.
Q. Okay. In paragraph 10, you say the '559 patent is directed to the field of wireless telecommunication systems, and that addresses the problem of multiple cellular telephones trying to communicate with the same base station in the cellular network at the same time.
On what basis do you make that statement?
A. From the description and specification of the patent.
Q. And could you point -- oh.
A. I don't have --
Q. Before we do that. Yes.
A. Yeah.
Q. Let me introduce as Cimini Exhibit Number 3, this is U.S. patent number 6,175,559. To Tyler Brown.
(Cimini Exhibit 3 marked for identification)
BY MR. WEINSTEIN:
A. Yeah. Thank you. Were you waiting for my

answer?

Q. Yes.
A. Okay. Sorry. So, in -- in column 1, around line 15 --
Q. Uh-huh?
A. Because multiple mobile stations may be trying to access the channel simultaneously.
Q. Okay. And just to step back a bit. In preparing for today, did you review the 559 patent again?
A. Yes.
Q. And when did you do that?
A. Yesterday, and Sunday.
Q. And were there any other materials that you used in preparing?
A. Yes. I looked at -- I looked at several of the other patents that I had.
Q. Several other patents?
A. I can't remember all the numbers.
Q. Several other patents related to this patent?
A. Related to this one.
Q. Anything else? Any other technical documents?

A. No.
Q. Did you refer to any --
A. Oh, wait. Yes. The 3GPP. Some of the 3GPP documents.
Q. Did that include the -- I'm sorry. A 3GPP TS25.213 standard?
A. Yes.

Q. Okay. So, and the next line in paragraph 10, it says, "When a new cellular telephone enters a cell, it must notify the base station of its presence so that it can begin to send and receive data on the network. The new cellular telephone transmits a choice signal called a preamble to allow the base station to detect its presence."

So from the time that a cell phone enters a cell to the time that it actually transmits the preamble sequence, can you explain what steps take place?

A. Not exactly. So I can tell you in general terms.

Q. Okay.

A. So when you're -- when you have your cell phone and you're in a -- in an area, you're in

Wilmington.

Q. Uh-huh.

A. You turn your phone on. Your phone immediately makes contact with the cellular system, trying to find the nearest base station. So that's all part of the initial process. Just knowing where you are, first of all.

Q. Okay.

A. But the process where now you have something to send is slightly different than -- this is more about the mobile station initiating, you know, communications with the base station.

Q. Such as making a phone call?

A. Such as making a phone call, a text, anything.

Q. Right.

A. And so, what you need is you need some information that needs to be exchanged with the base station, that one, allows the base station to know you're there, and to do synchronization. And that's what this short preamble is for.

So this would happen almost immediately when you have something to send. In general terms. I can't tell you exactly how --

Q. Okay.

A. -- 3G operates or even a 2G system.

Q. Okay. So before the preamble is actually sent, are there steps, are there any other communications that occur between the mobile station and the base station?

A. I don't know how each system operates, but in the older cellular systems, so if we go back to the 2G, what happened is as soon as you were -- your phone is turned on, with nothing to transmit, there's essentially something that would be -- you can call a beacon, that allows the station to -- to know where you are, within which cell you are.

Q. So the beacon is from -- from which to which? From the mobile station to --

A. It would be from the base station to the mobile. Setting up sort of a handshaking, to say yes, I know you're there.

But in the newer systems, that might not be necessary. I'm not sure.

Q. So in the newer system -- I'm sorry. So for 3G it might not --

A. It might not be necessary. But I can't say.

Q. Okay. Then the last line is that the base station then transmits to the new cellular telephone a unique identifying value that the new cellular telephone uses in future transmissions. Can you explain, what is the unique identifying value?

A. So, the unique identifying value depends on the system, all right. So let's assume that it's a CDMA system. So either -- either 2G or the newer 3G.

Q. Uh-huh.

A. So what the base station would have to tell the cell -- the cell phone is how that -- how to communicate so that the base station can distinguish it from other users, and the mobile station is transmitting to the correct base station.

Q. Okay.

A. So this identifying value could be a code, if it's a CDMA system. And that's how 2G and 3G would operate for CDMA.

Q. Okay. And the code, is the code actually sent from the base station to the mobile station?

A. The code is actually sent from the -- okay. So I should back up. I'm not sure if the actual code is sent. It could be that the base station sends to the mobile station an index, so the mobile station has a table where the code -- say index 7 means this code.

Or it could be, actually send, if it's being done by some circuitry that's generating the code, it can tell it the -- the weights on the -- on the shift register. I don't know how it's actually done.

Q. Okay.

A. In the newer systems.

Q. Okay. Let's move on to paragraph 11.

A. Okay.

Q. Because many new cellular telephones often enter a cell at the same time, multiple new cellular telephones may try to transmit preambles to the base station at the same time. And what was the basis for that statement?

A. So, let me see if I can find the line. Right. So, this comes from -- you can go the same line we read before, because multiple mobile stations may be trying to access the channel

simultaneously. All right. So that corresponds to many users -- multiple new cellular telephones might try to transmit the preamble to the base station at the same time. So that comes from simultaneously.

Q. Uh-huh. And then the following statement,

the base station must be able to distinguish the different preambles.

A. Right. So this -- this comes from reading the patent, but basically, also general knowledge, right? So if you need to -- if you have multiple users all trying to access the channel at the same time, you need a way to separate them.

Q. Okay.

A. Otherwise they just look like one blob of noise to the base station. So the base station needs to be able to separate these.

Q. Okay. And the '559 patent, you're saying, is directed to CDMA?

A. Yeah. That's what it says.

Q. Okay. And is it -- is the '559 patent also applicable to other forms of cellular systems?

A. No.

Q. Okay. In paragraph 12, you get into doing some background on CDMA systems. The second sentence, CDMA allows multiple cellular telephones to use the same physical communication channel. Can you explain what that means?

A. So, the -- you need to separate users in some way. And so, you can separate them in time or frequency. So that means users use different times, so you get a turn and I get a turn. Or use different frequencies, which is the way the oldest systems operated. Or there's another way,

where you can use the same time and the same frequency, but each user is assigned a different code.

And ideally, these codes are orthogonal. So that at the destination, at the base station, each user has a different code. The base station correlates with each of these codes, and separates the users. So they're allowed to use the same frequency channel at the same time.

(Phone beeps)

MR. WEINSTEIN: Excuse me.

Q. In the last clause, it says "Without significant interference by encoding transmitted data, using a code that is unique to that cellular telephone, and that can be distinguished from the codes of all cellular -- all other cellular telephones." Is that the same unique code you were talking about before?

A. Yes. I -- in the previous explanation, I actually answered, you know, explained the next sentence.

Q. Okay. So that's after the preamble has been sent?

A. Well, it's a combination, right? So there's two -- there's two features to a communication system, right? There's the synchronization access, and then there's actual transmission of data.

Q. Okay.

A. So the code would be used in -- a code would be used in both cases.
Q. Okay?
A. But it's in a -- in the preamble part, you're going to separate users to start access to the channel. In the -- once you have access,

then the actual data communication occurs, potentially with a different code. It depends on how the system is designed.
Q. Okay. And in the CDMA, is that the same code or different codes?
A. CDMA -- stands for code division multiple access.
Q. Right.
A. It simply means that each user has a different code.
Q. That would be --
A. In order to access the channel. In order to transmit data.
Q. Right. The code used for the preamble, and then the code used for later messaging, is that the same code or different code in CDMA?
A. It could be either. In the simplest case, it would be the same.
Q. All right.
A. But --
Q. Can you explain to me, I know if you give me some background on it, but what are the primary differences between CDMA and OFDM/FDMA?
A. Okay. So --

MR. HASLAM: I'm going to let him answer that, but I'm going to object on the relevance of that. It's not a topic that's discussed in his declaration, and that's what we're here to talk about.

MR. WEINSTEIN: Well -- okay.

Q. Please answer.

A. Okay. So, FDMA means I separate users by different -- each user uses a different frequency. So the very first cellular system is, for example, which was analog, called amps, used a separate frequency. So you were given a frequency, and you kept it forever. That frequency channel was yours. That's similar to your -- when you pick up a wired telephone. You get that wire, and that wire is yours and no one else uses it.

In -- in TDMA, we all use the same wire, but we share it. So I use it first, and then you use it. In CDMA, we all use the wire, all use it at the same time, but we all use a different code.

OFDM is not the same class. It's not an access technology. OFDM is a modulation

technique that permits you to transmit at higher bit rates. So it applies to one user at a time. And it could apply to all three systems. CDMA, TDMA or FDMA.

Q. Okay. So, I'm sorry. So OFDM can be used in CDMA?
A. Yeah, it can. There remember plenty of technologies that are called multi carrier CDMA, that look very much like OFDM.
Q. And those are used in the U.S.?
A. I don't know. The 3G technologies, some of the original 3G proposals were multi carrier CDMA, but I don't know how much of it is actually being -- going to be deployed, or even considered in the future.
Q. Okay. I'd like to enter as -- this is now Cimini Exhibit Number 4. And this is just a list of Dr. Cimini's publications.
(Cimini Exhibit 4 marked for identification)
BY MR. WEINSTEIN:
Q. And this is a publication list that comes from the University of Delaware's website that's linked to your bio.

A. Okay. Yeah.
Q. And this and lists your journal articles. Also conference papers, your patents, and your books. Books is on -- I guess it's page 6.
A. Page 6.
Q. No, I'm sorry. It's not there. I'm sorry and on the very last page. Page 8.
A. Yes.
Q. Okay.
A. They're just book chapters.

Q. Those are just book chapters?
A. Yes.
Q. And do any of those book chapters relate to CDMA?
A. No.
Q. And in this, there are 50 journal articles listed. I guess the majority are relating to OFDM. Do any of them relate to CDMA?
A. I'm sorry, I'm trying -- I'm looking through it --
Q. Sure.
A. -- to see if there are. No. I don't -- I don't believe so.
Q. Okay. And is that also the case for

the -- the conference papers?
A. I would think so.
Q. There's quite a few more.
A. Yes.
Q. And just also to confirm, also, for your patents?
A. No. No CDMA.
Q. So, in -- in providing the overview of CDMA, how -- on what basis do you -- are you able to discuss it?
A. CDMA is a well-known technology, and it's -- it's well developed already in textbooks. And I've worked in cellular, and wi-fi for almost 30 years, so I've developed a background where I understand these. And I've taught courses and short courses that covered CDMA.

Q. Okay. And returning to your declaration, in paragraph 13, you said the basic unit of information transmitted over CDMA is called a chip. Can you explain the meaning of a chip?

A. In the -- in the fundamental principle of CDMA that allows it to -- to work, is that what you do is you take a given user or information symbols from the user, information from the user,

code, what do you mean that it's used to perform signal separation?

A. That's to determine which base station -- you know, which base station you're talking to.

Q. So this is -- when you mean signal separation, you mean that the base station knows it's supposed to receive it or it's --

A. No. This doesn't have anything to do with whether it's supposed to receive it or not. It just has a code that's -- that identifies the -- that particular base station. So it knows it's for -- you're a base station.

Q. Right.

A. You know this is for you, as opposed to for another base station.

Q. Right. That's what I intended to say, is that --

A. Oh, okay.

Q. So the base station knows when it's receiving a signal from a mobile station -- the?

A. That's for itself.

Q. It knows it's for the base station?

A. Yes. Yes.
Q. To put it again, so to tell the base

station that is signal is indeed intended for it?
A. Okay.
Q. Okay. And the inner code to uniquely identify. What's the -- can you explain that?
A. Each mobile station then would have its own -- the each mobile station within that base station's cell area would have its own identifying code.
Q. And in choosing that code, is that based on information it receives from the base station? The inner code.
A. The inner code is chosen based on -- this again gets back to that other question we talked about. Is the -- the other issue. Are these codes assigned in some way to mobile stations, or are they given to the mobile stations when they make this handshaking.
Q. Right. And that's just something you're not sure about?
A. Something I'm not sure about.
Q. Okay. So, I know you're unsure, but it's -- we were saying it's possible, then, that the base station sends information to tell a mobile station use this particular outer code, or

one of these particular outer codes, and then also use one of these particular inner codes?

A. So wait. That's different from the question you just asked me a minute ago. A minute ago you asked about the inner code.

Q. Yes.

A. Right. So the inner code is specific for each mobile.

Q. Right.

A. So in that case, somehow the mobile must know what its code is. So, it either is embedded in the mobile unit itself, or it's sent by the base station.

The outer code is something different. The outer code is something which is common to everybody in the cell. So the base station, you know, is -- is broadcasting this all the time, for example.

Q. Uh-huh.

A. And everybody's just listening to what it is, and then it feeds it back if it hears it. Right? It's -- it's like an identifier.

Q. Right.

A. -- of that base station.

---

and the codes didn't match, you wouldn't be able to decode it. So what that means is that I -- if I'm -- if I had the correct one, I would decode my -- I would be able to detect my -- if I had the one that's for me, and I know it's for me, then all of the others, I don't decode those, but

they become zero -- you know, like zero background noise to me. That's what this is intended to mean.

Q. Okay.

A. Flipped it the other way, it means I only can detect the one that's using the correct outer code.

Q. Okay. That makes sense.

A. That makes a better -- maybe a better way to say this.

Q. Right. It -- the I think that sentence just kind of takes the next step leap, without --

A. It's okay.

Q. -- making it's clear that it's --

A. I understand.

Q. It states it's not correlating it, because it's not correlating it, it can't decode it correctly.

A. Right.

Q. The next line the '559 patent suggests to use gold and Kasami codes to form the outer code. How does the -- well, start with the example of using a common one, where each -- where there's only one outer code for the base station.

A. Uh-huh.

Q. How does -- or let me -- what is in the mobile station that enables it to generate the same code as all the other mobile stations in the -- in that cell?

A. I can't tell you exactly how it's

happening in 3GPP. But what I would do with a Gold code, for example, or a Kasami, because these come from actual shift -- actual length shift register sequences. So you use the shift register to generate it. You tell the -- only information you really need to transmit is how long the code is or how many shift register -- shift registers you need. And there's also usually sort of a generator that tells them how to make the connections. And that would generate the Gold code in one transmission.

Q. What do you mean by a generator to make the connections?

A. It -- a shift register.

Q. Uh-huh.

A. Okay? So a shift register has a bunch of boxes which are essentially delays.

Q. Right.

A. And then there are connections, there are feedback connections, and feed forward connections.

Q. Uh-huh.

A. And it tells them how to make these connections. Which ones are connected. So if there's four boxes, do you add the output of 1 and 2 or do you add the output of 1 and 3 or do you add the output of 1, 2, and 3. Those connections are part of what's called the generator equation for this. And that's what generates the code.

This is true for all pseudo random sequences. There's a standard diagram, and these connections are specified. So if you simply specify the connections, and how many of these shift registers there are, you can generate any pseudo random sequence. Any M sequence.

A. Under the way you just defined it, no.

Q. So --

A. Let me -- can I repeat it because I'm not sure I understood.

Q. Yes.

A. So, a symbol is defined as 8 chips.

Q. Yes.

A. And you want the outer code to be 9 chips long.

Q. Repeating at 9 chips, rather than 8 chips.

A. Right. So then you asked -- okay. The relationship between -- so it's not an integer number of symbols. Okay. Yes.

Q. In that situation, would an outer code of 9 chips fall within the scope of claim 1, but not within the scope of claim 2?

A. Yes. If claim 1 is meant to be anything, it doesn't have to have that particular period. Yes.

Q. Okay.

A. They would be different.

MR. HASLAM: I have no further questions.

THE VIDEOGRAPHER: This deposition

sending at approximately 1:47 p.m.

(Deposition concluded at 1:47 p.m.)