Witness: Hugh Roddis

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Examinations: Direct – Rick Distaso; Cross – Mark Geragos; Redirect – Rick Distaso; Recross – Mark Geragos

Day 1 of 1 for this witness

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Direct Examination by Rick Distaso

DISTASO: Mr. Roddis, where are you currently employed?

RODDIS: Company called Orion Electronics Limited.

DISTASO: Where is it located?

RODDIS: In Nova Scotia, Canada

DISTASO: And how long have you worked there?

RODDIS: A long time. Since 1975.

DISTASO: Were you one of the original founders of the company?

RODDIS: Yes.

DISTASO: What is your current position there?

RODDIS: My current position is Chief Technology Officer. CTO.

DISTASO: Up until recent times were you the President of the company?

RODDIS: Yes.

DISTASO: Just for a little background, has the company been sold to some other entity?

RODDIS: Yes, indeed. Roughly 18 months ago I sold it and a new president has taken over.

DISTASO: So is your position, as part of the sale, did you agree to stay on to help the transition?

RODDIS: Yes, exactly.

DISTASO: All right. Can you tell the jury, just briefly, what is it that Orion does?

RODDIS: We manufacture electronic equipment. In particular we specialize in what we call radio location equipment. And part of, part of that is equipment related to GPS tracking technology.

DISTASO: Does your company make a tracking, a tracking package that can be sold to law enforcement to be used to track automobiles?

RODDIS: Yes.

DISTASO: And in this particular case regarding Scott Peterson, did the Modesto Police Department use one of your packages to do some tracking?

RODDIS: Yes.

DISTASO: And what, you don't have to go into any great detail at all. Just, can you just tell the jury, what does the package consist of?

RODDIS: The package that was used here consists of a little black box which has GPS receiver in it, a control circuitry, and a cellular phone. And part of the package, too, is software at the other end of the thing which you can use to retrieve the information from the unit.

DISTASO: Can you retrieve the information, like live track? As someone is driving down the road, can you kind of follow them on the computer?

RODDIS: Yes. Yes.

DISTASO: How would you do that?

RODDIS: Well, what happens in that case, if you just want to track, as we call it in real time, you go to your computer and connect to the unit using the wireless system. Just like making a regular phone call. And the computer would then link electronically with the unit on the vehicle. And it would transmit back again and show on the screen on a map where the vehicle was.

DISTASO: And can you also save that data, as the vehicle is going along, can you save the track of where the vehicle is?

RODDIS: Well, there are two ways of doing that. First one is the unit itself, the unit on the vehicle, records the track. It keeps a record of, whether or not you are connected over the wireless link it does that. So you could connect to the unit, download the tracks that have been previously stored, or you can watch the unit as it's moving, and then store that information as another track separately.

DISTASO: So you can get the information kind of in real time, or at some later time?

RODDIS: Yes.

DISTASO: All right. Let me show you 234E, and just have you take a look at this dataset. And is this, when you print out a GPS track dataset, that is what it looks like there in 234E?

RODDIS: Yes.

DISTASO: And I'm going to put it up on the screen. Maybe you can take the jury through just kind of what each column means. Just pull off the page here. It's hard to see from that back, you have another page in front of you; is that right?

RODDIS: I do, yes.

DISTASO: Can you, if we just kind of start at the top, it gives us some header information?

RODDIS: Right.

DISTASO: And what is that information?

RODDIS: Basically that's just information on the time that the track was downloaded. It's the information that's a record keeping. It's nothing to do with the actual information that's stored in the vehicle.

DISTASO: Okay. I was going to ask you about that. In this particular case, was there, when the data was converted to a different format, did the, was there a problem with the printout of the header information?

RODDIS: I have to go back a little bit of history here. Original data was downloaded –

JUDGE: What do you mean by header information? I don't know if the jury knows –

DISTASO: Just the information that we're talking about, where the says "Date Downloaded".

JUDGE: Right at the top of this sheet you see four or five short lines. It says Serial Number, it says Target Name and Date Downloaded. Is that what you mean?

RODDIS: That's what we call the header. It's just it's a little bit printed out at the top of a printed page. That's all.

DISTASO: Let me stop you there. Does that information, is that information on the top of the page separate from the information that's contained in the actual general GPS data?

RODDIS: Yes. It's just like a title page. Actual data underneath is what the unit actually records, and so on.

DISTASO: Just so we're clear as, what the issue is, if there is one here, can you mark this page for me? Mark the second page.

JUDGE: Mark one single page.

DISTASO: I'm going to mark it separately.

JUDGE: Is this part of –

DISTASO: No.

JUDGE: Is it a new one? 237.

DISTASO: Uh-huh.

GERAGOS: What's, can I see which page is

JUDGE: This is GPS tracking data.

DISTASO: That particular, the, what does the date downloaded time mean? It says 01/09/2003, 8:29:07 AM local time.

RODDIS: Well, the information below that, all the columns of information you see, it's the information that's stored regarding the location. It's stored in the unit itself. The date and time at the top of the page is simply the time that data was retrieved from the unit.

DISTASO: Okay. Let me show you a separate printout of that page. It has a date download time of 01/09/2003, 12:29:07, which was AM, which is exactly eight hours off of the other page I showed you. Can you tell the jury what happened with that?

RODDIS: Perhaps a little background information. First of all, the data downloaded in this case from the unit was downloaded and stored in a certain piece of software that we write, and it's called in an SDT format, we call it. Now, in the course of the time, since that happened, a new program has been introduced which has more accurate map data, more accurate maps. And that program was used to display the maps. It shows format data in a different format.

DISTASO: And so, for example, the more accurate, what is the newer program called? You said the one is SDT. What is the other one called?

RODDIS: What is known as TRK format. Stores the same data. Done slightly differently.

DISTASO: The TRK format, is that what allows you to put the data on pictures like, for example, what you see behind you on 235A?

RODDIS: Yes.

DISTASO: Is there any difference between in the actual datasets, GPS datasets, between the one or the other?

RODDIS: No. The data has to be converted, it's the same data. It will print out exactly the same on this piece of paper.

DISTASO: And on the header where the, where the Date Downloaded, Time, why is there, what's the eight-hour time discrepancy?

RODDIS: Okay. Well, perhaps I should jump back a bit to the previous explanation. This was downloaded in the original program. It was then converted to the new program format. Unfortunately there was an error in the conversion routine, which calls had the local time variation, which is eight hours to be subtracted twice instead of once to convert from GMT to local time, just in the header. Had nothing to do with anything else. It's just in the header. The file was printed out in the printing process.

DISTASO: Okay. So when we converted the GMT, when you subtracted eight to get the local time, it, for whatever reason, did that twice in the header information?

RODDIS: Exactly. It was a programming error. And since being corrected, you have the corrected version in your hand.

DISTASO: And the 234E, the 8:29:07 version has the correct time that the data was actually downloaded?

RODDIS: Yes.

DISTASO: If you could, I'm going to put up, put this back up on the screen. And

JUDGE: What's the number you are showing?

DISTASO: This is 237. When we look at 237, we talked about the header issue. But can you talk about the actual data, what is it that we're seeing there?

RODDIS: Okay. There are, you see columns of information. That, the first column, which is on the far left, as you can see starts 1, 2, 3, 4, 5. That's just a record number. It's just an arbitrary number to enable people as a reference number. Doesn't mean anything more than that.

DISTASO: What's, well, what's it referencing to?

RODDIS: I said it's a reference number to enable, to say I want to talk about report number 50, or 51, or 52. It's just a number.

DISTASO: Okay. Go ahead.

RODDIS: The next line of zeroes perhaps I could ignore for a minute and come back to.

DISTASO: Un-hun.

RODDIS: The next line.

JUDGE: Mr. Roddis, would it be easier for you if you went to the board with the pointer, went up to the board and do it, rather than do it from 40 feet away? I'll just ask you to keep your voice up. Use the pointer there. Then keep your voice when you go to the board.

RODDIS: Yes. This is just the reference number I mentioned, just the number of track. Put this line of zeroes aside. I'll explain this section. Here is the date at which the record was taken. In other words, the vehicle was at this place at that date. This is the time. And there is an "L" there, which means it's local time. It's your Pacific Standard Time, in this case, or Pacific Daylight Time, or whatever. It's not the GMT, which is the universal time. And the minus eight behind it, it tells you that in order to calculate the local time we took off eight hours, which is the true, and that actually tells you it wasn't Daylight Savings Time. It would have been seven hours if it was Daylight Savings Time. This just tells you what it's a GPS fix, and nothing else. In the new track format with the newer equipment, we can actually put different comments in there. But particularly this equipment that was used was an older version of the equipment, and it doesn't have any comments here except GPS Fix. Here we have the latitude and the longitude. And I suspect Doctor Loomis might have talked to that earlier. But this tells you how far north you are of the equator. This tells you how far west you are from England, Greenwich. The next column

says speed in miles an hour. And at this point the vehicle is obviously stationary. I'd like to explain a little bit about how this speed is determined, because it's important perhaps when you look at the data in the future.

DISTASO: Go ahead.

RODDIS: This speed doesn't come from the speedometer of the car, or anything like that. It's strictly calculated. We just take the position and latitude a longitude of one stop, and on the next one they would calculate, okay, he's moved this far in so many seconds, then he has to have been going that speed. It's not intended to be terribly accurate. It's not intended for traffic tickets, or anything like that. It's strictly to give the investigator a general idea of how fast the vehicle was moving.

DISTASO: And the final column, were you done talking about the speed?

RODDIS: Yes.

DISTASO: The final column, I want to talk about the motion sensor in the vehicle. Can you explain to the jury how those motion sensors work?

RODDIS: Yes. There might be a concern in your mind if you see no motion and yet a speed attached to it. The reason is that no motion or motion comes from a vibration sensor that's in the vehicle. It actually senses whether the vehicle is vibrating or moving. And so it is possible, for example, if the car can be stationary, somebody slams the door or even very heavy gust of wind, you a might see a motion here, even though the vehicle is stationary. And the same is true in reverse. That if you are in, say for, example a Cadillac on very, very smooth highway, and there is very little vibration in the vehicle, it might actually say no motion here even, though the car is going at a reasonable speed. So this is strictly a measurement of whether the sensor has sensed any vibration or not in the car.

DISTASO: Have you, in your working with these units, have you noticed cases where the car is clearly moving, and yet it's not registering any motion?

RODDIS: Yes. That does happen on occasion As I said, it's the Cadillac-on-a-freeway effect. So you do see that.

DISTASO: And what about the other example where a car is parked and some kind of gust of wind, or something? Have you seen that before?

RODDIS: Yes. It can be useful sometimes. Because if somebody slams the trunk of a car, you actually might see an indication that that's happened. But it's, it does happen from time-to-time. As I said, this is an indication for the investigator. It's not intended to be an accurate measurement.

JUDGE: Can we have him back on the witness stand?

DISTASO: He can go back on. He can go back on the stand.

JUDGE: Do you want to resume the stand?

DISTASO: Now, Mr. Roddis, were you asked to review just some specific portions of the tracks regarding these vehicles traveling to areas around the Berkeley Marina?

RODDIS: Yes.

DISTASO: And just look behind you. If you look at 235A, do you have an opinion as to the validity of that particular track?

RODDIS: Well, it's, it seems to me that it is a good track, a reasonable track.

DISTASO: And what things do you look for to kind of give you that information?

RODDIS: Well, first thing, it's not exactly perfect. If someone was trying to create it or invent it, they probably would have a slight variation in it. So some of the points are slightly to one side or the other, which indicates to me that this is.

JUDGE: Would you like to use the pointer, again, doctor? Or Mr.?

RODDIS: Mr.

JUDGE: Okay. Just made you a doctor.

RODDIS: I appreciate the promotion.

JUDGE: That's all right.

RODDIS: Yes, this is actually a quite a good track. There are times when it's perhaps a little bit further over to one side of the road or the other. This shows me it's probably a good track that's been downloaded. Also, you can see, as you look at it, if you didn't have the picture here, you would see a loop or a variation. You wonder, why would that be there? Or you can see from the picture that here, for example, the vehicle had to do a loop, because he was going around these trees that were in the middle of the parking lot. So that's the kind of thing that makes me feel this is a valid track. It's good.

DISTASO: Let me show you 235B. Again, if you take a look at this particular track, do you have an opinion as to the validity of that particular track?

RODDIS: Yes. Well, this track has some slight differences to it. One issue is that it's, obviously the unit was set to take fixes further apart.

DISTASO: Let me stop you there. Is that something that your unit allows the user to do? Can you set it to take fixes, say, every minute, or every five minutes, or every whatever?

RODDIS: Yes. You can set few seconds apart, or few minutes, or whatever you wish.

DISTASO: Okay.

JUDGE: What does it take a picture of?

RODDIS: I'm sorry?

JUDGE: What does it take a picture of?

RODDIS: A picture?

JUDGE: Did you say picture?

DISTASO: No.

JUDGE: What were you saying?

DISTASO: Let me re-ask the question. These little dots that we have on the pictures, Mr. Roddis, they represent the GPS fix; is that correct this?

RODDIS: Position location or fix.

DISTASO: And can you set the unit so that the unit takes a fix every thirty seconds, for example?

RODDIS: Yes.

DISTASO: Okay. Could you also set it that it only takes a fix every five minutes?

RODDIS: Exactly. Yes, you could. The operator can choose.

DISTASO: So we're going to see different yellow dots on the picture, depending on how often the unit is taking a fix?

RODDIS: Yes, that's right.

DISTASO: All right. Is that is that what you were describing here?

RODDIS: Exactly. That's what I was describing. And in this position here, for example, it looks as though the vehicle drove right across the middle of the, of what appears to be the road. However, this fix was taken here, and then the next one was taken a long time later. So this whole section, perhaps, where he drove was missed, just because this track goes across the middle. This doesn't mean the vehicle went there. It's joining up two dots.

DISTASO: So the lines on the picture, are just joining up the fixes as we see them?

RODDIS: Yes. That's right. The red lines don't represent actual moves. It's just dots joined up together.

DISTASO: Actual movement would be represented by the dots?

RODDIS: Yes. The movement here. I do think that is a reasonable track.

DISTASO: Okay. Let me show you final one here. This is People's 236. And, again, what is your opinion as to that particular track?

RODDIS: It seems quite reasonable.

DISTASO: And for the same reasons that you have just told us?

RODDIS: Yes.

DISTASO: You can go ahead and have a seat again. Thank you. No further questions, your Honor.

Cross Examination by Mark Geragos

GERAGOS: Mr. Roddis, the, if I understand correctly, these longitude and latitude numbers that are right here, those produce the dots that are on here; is that correct?

RODDIS: Yes.

GERAGOS: Okay. So if you were to take that particular yellow dot, you would line it up along the latitude and latitude, that would give you exactly where you are at any one point, correct?

RODDIS: Yes, sir.

GERAGOS: And specifically when you have these printouts of the data, what you are doing, you are converting, your program is the software program, correct?

RODDIS: Yes.

GERAGOS: We just heard from Doctor Loomis. He's the one who gives you, or you purchase the GPS unit from him?

RODDIS: Yes. Within our device are four different components. One of them is a piece that we purchase from him.

GERAGOS: And ideally what you do is that you put together an, I think he used the term a bundle of the GPS, cell phone, and then some other components, correct?

RODDIS: Yes.

GERAGOS: Okay. That device is then placed on a car, correct?

RODDIS: Yes.

GERAGOS: Has an antenna of some kind on it, correct?

RODDIS: Yes.

GERAGOS: Reason you have got an antenna so it can hit the various satellites, going to fix on the various satellites?

RODDIS: Yes.

GERAGOS: That's what gives the fix on the printout of the longitude and latitude?

RODDIS: Exactly.

GERAGOS: Then you have some kind of a base unit that will allow you to recall this data, correct?

RODDIS: Yes.

GERAGOS: So law enforcement presumably has got this tracking unit that's at their police station or some such place, correct?

RODDIS: Yes.

GERAGOS: And they can, when you say real time, that means, if I want to know at 10:00 o'clock in the morning where somebody is, I can go on to this base unit, plug it in, it will call basically like a cell phone. It will retrieve the information, and it convert it by your software and tells you where the person is?

RODDIS: Exactly.

GERAGOS: And if I'm not there at the base unit, if I want, the next day, to see where the person who I have got this tracking device went, I can go to that unit, and it saved in there is kind of like a record of the tracks, so to speak; is that correct?

RODDIS: Yes.

GERAGOS: You have looked at the data. There is, I'm not going to belabor, I guess Mr. Distaso was talking about specifically right here, these what we call the header unit, what you call the header; is that right?

RODDIS: Yes.

GERAGOS: Okay. Now, the reason, initially there was some somebody had noticed there was a problem because the date downloaded. Right now it reads 1-9-03 at 12:29 a.m. And the tracks happened obviously the day before, correct? On this particular one.

RODDIS: The tracks were the day before. Yes, that's possible.

GERAGOS: Well, what Mr. Distaso, I think, was getting to is that originally somebody noticed that the date downloaded was prior to when the tracks were; is that right?

RODDIS: Part of the tracks, I believe, yes, not the whole thing.

GERAGOS: As if somebody, your software could tell where somebody was going to go before he drove?

RODDIS: Precognition. But, no.

GERAGOS: So that your software doesn't read minds, or the car's mind?

RODDIS: No.

GERAGOS: So what turned out there was some kind of glitch in the software in terms of, I guess you said this is the Greenwich time here, and then this is the local time here. Correct? Local time, just

RODDIS: In this one they are both local time.

GERAGOS: You said minus eight hours?

RODDIS: Yes.

GERAGOS: Is that correct?

RODDIS: And then

GERAGOS: Is this also the local time minus eight here?

RODDIS: That, I believe you are looking at the one that was correct, in fact.

DISTASO: No, that's the other one.

JUDGE: That's the other one.

GERAGOS: This is?

RODDIS: No, that's right. I'm sorry, yes. No, on the wrong one it was, the minus eight was taken off twice. So it wasn't GMT or local time. It was GMT minus eight twice rather than once.

GERAGOS: Okay. And just to get to the kind of the bottom line of all of this, the now corrected data that you have accurately reflects the time and the date that somebody was at a location; is that correct, in Pacific Standard Time?

RODDIS: Yes.

GERAGOS: And this header information really is meaningless, unless we want to know who it was, or when it was, that somebody downloaded this; is that right?

RODDIS: Yeah, that's true.

GERAGOS: So it doesn't really matter much whether or not the header was eight hours this way, eight hours this way, or minus the eight hours the other way. All that matters is what is the time and the date here on the data that is being reported from the unit that's attached to the car; is that right?

RODDIS: I believe so, yes.

GERAGOS: Have you looked at all of the other tracks? There were some other tracks this morning that I had shown. One of these was marked as D6H, which is a January 20th track. Have you looked at that? I assume that was, that's still, there was, you understand that there was a number of devices used in this case, correct?

RODDIS: Yes.

GERAGOS: Okay. Yours is the Orion device, correct?

RODDIS: Yes.

GERAGOS: You understand there was also what a Sky Track, Safety Track, or something like that?

RODDIS: I was told that this morning. Actually, I didn't know it previously.

GERAGOS: And is this, does this appear to be the plotting that was done by your unit?

RODDIS: I would think so. But I can't tell.

GERAGOS: Does that look to be good data?

RODDIS: Yes.

GERAGOS: Okay. I'm going to show you D6G. That's a close-up. Does that also look to be good data?

RODDIS: Yes.

GERAGOS: I'm going to show you D5Z. Does that also look to be good data?

RODDIS: I think so, yes.

GERAGOS: The 234C, Doctor Loomis talked about, there is a couple of glitches on this; is that correct?

RODDIS: Yes. I think I'm just looking for them, actually. But, yes.

GERAGOS: The one that's down there kind of midway, and the one that's up in the upper left?

RODDIS: Yeah.

GERAGOS: Yeah? And I had asked him about this. Apparently Orion, your company, came up with one explanation first as to what was causing this; is that correct?

RODDIS: This is the one minute jump, is that, I believe that is the one you are referring to, is where the thing jumps one minute to one side, or one degree.

GERAGOS: Right there?

RODDIS: Yes. 60 miles, anyway.

GERAGOS: Right.

RODDIS: Yes. When the, that problem was first brought to our attention some time ago, we looked at the, what we thought might be the problems and came up with an explanation. Subsequent to that we did a lot more investigation, discovered what the exact problem was, and it's very similar to our original thoughts, but not exactly the same, which is why there were two explanations.

GERAGOS: This is after you consulted with Doctor Loomis?

RODDIS: That's after we discussed it with Trimble, yes.

GERAGOS: Thank you. I have no further questions.

Redirect Examination by Rick Distaso

DISTASO: I do. Just looking at one I wanted to explain. Mr. Roddis, the one column that you didn't explain was the zeroes. You said you were going to come back to it. Can you just explain that real quick for us?

RODDIS: I'm sorry, I missed it. With the new data system that we have, or the new thing, it's possible to merge tracks, in other words, take two or three different tracks, may have different times, to join them together to make one track. In order to make sure that there is no covert manipulation, if you like, that column there records that fact. So if there were several different tracks merged into one for some reason or other, there would be a 1, 2, 3, 4. Each number would represent which track it came from originally. So you would have a history of how that particular series were made by merging other ones together. In this case it's all zeroes, which says that only one file being used.

DISTASO: Oh. So there was no merging in this particular case?

RODDIS: Exactly.

DISTASO: That was all I have.

Recross Examination by Mark Geragos

GERAGOS: Did you say that that was something, that that column, that particular column was not, you could not merge under the original software?

RODDIS: Yes.

GERAGOS: And you can now under, is that under the SD, what you call the SDT software?

RODDIS: The old one. The new one is TRK.

GERAGOS: Right. So under the TRK, you can merge. Under the SDT you can't?

RODDIS: Yes. There would be that record.

GERAGOS: And I assume that the, notwithstanding whether it's SDT or TRK, it's still the same data?

RODDIS: Absolutely, yes.

GERAGOS: So if you are using SDT software, which is the first generation, you are already using TRK software, which is the second generation, you still have the same data that can be converted under either software program, correct?

RODDIS: Yes.

GERAGOS: So you could still merge under, with this original data once you have got the TRK available, right?

RODDIS: Yes.

GERAGOS: No further questions.

JUDGE: May that witness be excused?

DISTASO: Yes.

JUDGE: Thank you. You can excused, Mr. Roddis. Thank you.