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Page 5 1 VIDEOTAPED DEPOSITION OF STEPHEN HALL 2 March 11, 2015 3 4 THE VIDEOGRAPHER: This is tape number 1 to 5 the videotaped deposition of Stephen Hall in the matter 6 of Omega Patents, LLC versus CalAmp Corporation 7 being heard before the U.S. District Court, Middle 8 District of Florida, Orlando Division, Case Number 9 CV-1950-Orl-36DAB. This deposition is being held 10 at 2400 East Katella Avenue, Suite 1050, Anaheim, 11 California 92806 on March 11th, 2015 at 9:07 a.m. My 12 name is Mike Cooper, and the court reporter is Sheryl 13 Meyer. 14 Would all counsel present please introduce 15 yourselves and your affiliations. 16 MR. SANTURRI: Ryan Santurri on behalf of the 17 plaintiff Omega Patents, LLC. 18 MR. KAUTH: Joel Kauth on behalf of defendant 19 CalAmp Corporation. 20 MR. CHONG: Eugene Chong on behalf of CalAmp 21 Corporation. 22 THE VIDEOGRAPHER: Thank you. 23 Would the court reporter please swear in the 24 witness. 25	Page 7 1 Q. Okay. How many times? 2 A. Once. 3 Q. Okay. Well, you probably understand generally 4 the concept here, but let me just go through a few 5 rules. 6 A. Uh-huh. 7 Q. I'm here just to get the benefit of your 8 knowledge. None of my questions are intended to trick 9 you or confuse you; so if you have any questions about 10 anything I ask, just let me know, and I'll do my best to 11 try to clarify. Is that fair? 12 A. Very good. 13 Q. All right. And you understand you're under 14 oath here as you would be before a judge and jury? 15 A. Absolutely. 16 Q. And is there any reason medical, medication, 17 any reason why you couldn't provide honest and truthful 18 testimony? 19 A. Not at all. 20 Q. All right. We have a court reporter here 21 taking down everything we say. She can only write -- 22 she can only record what one of us is saying, so I'll do 23 my best not to talk over you and if you can do your best 24 not to try to anticipate my questions and jump in before 25 I finish them, that will help this go more smoothly, and
Page 6 1 STEPHEN HALL, 2 having been first duly sworn, testified as follows: 3 4 EXAMINATION 5 BY MR. SANTURRI: 6 Q. Morning, sir. 7 A. Good morning. 8 Q. Can you introduce yourself for the record? 9 A. Yes. My name is Stephen Hall. The correct 10 spelling is S-t-e-p-h-e-n. 11 Q. All right, sir. And by whom are you employed? 12 A. I'm an employee of CalAmp Corporation. 13 Q. Do you have a title at CalAmp? 14 A. My official title is director of system 15 engineering and technology. 16 Q. What does it mean to be the director of system 17 engineering and technology at CalAmp? 18 A. My role is to look at the needs of our 19 customer and market and to match them up with various 20 technologies that are going on in the industry component 21 level and otherwise to make sure that we have an 22 appropriate solution. 23 Q. Have you ever had your deposition taken 24 before? 25 A. I have.	Page 8 1 we won't get in trouble with the court reporter. All 2 right? 3 A. I understand. 4 Q. Okay. If at any point you need a break, just 5 let me know; and as long as there's no question pending, 6 we'll get to a break for whatever you need. 7 A. Okay. 8 Q. All right, sir. Can you tell me -- well, how 9 long have you been with CalAmp? 10 A. I've been with CalAmp since 2006. 11 Q. And when you started at CalAmp, did you start 12 as the director of system engineering and technology? 13 A. I don't recall what my title was there. It's 14 essentially been the same job all along. 15 Q. Okay. Can you give the jury the benefit of 16 your educational background after high school. 17 A. I'm actually self-educated. It's been a 18 combination of industry experience as well as individual 19 classes and seminars beyond high school. I did attend 20 a prep school in high school, a pretty good foundation. 21 Q. No formal college degree? 22 A. None. 23 Q. Any engineering certificates or other 24 professional certificates or licenses? 25 A. No.



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Page 9 1 Q. And you said that part of your education came 2 through industry experience so if I can have you walk 3 me through the industry experience you had since high 4 school if you can go back that far. 5 A. If you want to go back that far, I can go back 6 that far. 7 Q. Well, how about this. Let me narrow it more. 8 Can you give me the benefit of any industry experience 9 that has helped you in the role you play with CalAmp. 10 A. Okay. Right out of school I worked for a 11 number of years in the communications industry, 12 specifically two-way radio, conventional communications 13 of the day. That was initially precellular technology 14 days. Then I moved into the -- actually the video 15 industry where I was involved with various control 16 systems in both hardware and software design, in that 17 area, not directly pertinent to what I do today but 18 working with a lot of the same technology building 19 blocks. 20 In the mid-'90s I got involved in 21 semiconductors and ultimately back into the 22 communications industry in the context of wireless data 23 communications working with both cellular technology as 24 well as local area network types of technologies. In 25 my role there I was essentially responsible for product	Page 11 1 Q. GPS 2000? 2 A. Yes. 3 Q. And you say that the cellular -- was it -- the 4 cellular radio in the GPS 2000 was something that you 5 worked on? 6 A. Yes. Yeah, that was my product. 7 Q. And was that sold by Philips or was that sold 8 by somebody else? 9 A. By that point it was sold by a company called 10 Standard Communications. 11 Q. And what specifically did you -- I don't 12 suppose you recall the -- strike that. 13 I don't suppose you recall the name of the 14 cellular radio that you're referring to? 15 A. That would have been a model CUA1K. 16 THE REPORTER: A? 17 THE WITNESS: K like King. 18 BY MR. SANTURRI: 19 Q. CU81K? 20 A. Yes. 21 Q. Okay. And what did you specifically do with 22 regards to developing the CU81K? 23 A. Okay. I was actually responsible for defining 24 the architecture of that product. I ran the wireless 25 data division of Standard Communications. I had
Page 10 1 management, the definition of new product solutions 2 and architectures ultimately leading up to the design 3 of a radio module that was used for embedded cellular 4 technology applications. 5 Q. All right. And after the semiconductors and 6 the communications industry where next? 7 A. That business was actually spun out of Philips 8 Semiconductors who was my employer at the time. As a 9 stand-alone business under a division of another 10 operating company of Philips, we actually brought that 11 product to market, and in fact the resulting module 12 of that was used in a wide variety of applications 13 including mobile tracking applications, combining that 14 with GPS. In fact the first product that was developed 15 or that was offered by Omega was developed by a customer 16 of mine and actually included our module. 17 Q. All right. Which product was that that you're 18 referring to? 19 A. This was Omega's original tracker. I believe 20 they referred to it by a number. I think it was perhaps 21 2000. I'm not 100 percent certain. 22 Q. Do you know when that was? 23 A. That would have been roughly -- I believe it 24 would have been early 2000, perhaps 2000/2001. It may 25 have started slightly earlier than that.	Page 12 1 engineers on my staff both here in the U.S. as well as 2 in Japan who comprised the actual design team that did 3 the direct development of the device. 4 Q. What does that mean you defined the 5 architecture? 6 A. As far as the -- how the device worked, kind 7 of the block diagram of the various elements within the 8 design and how it interfaced to the outside world. I 9 defined the communications protocols that were used to 10 interface with the device. 11 Q. And when you say you defined the 12 communications protocols, you mean you selected known 13 communications protocols or you came up with all the -- 14 A. This was a proprietary interface. 15 Q. Okay. And so these were -- so these were 16 newly developed communications protocols by Standard 17 Communications? 18 A. Yes. 19 Q. And how did you go about developing new 20 communications protocols for the CU81K? 21 A. It was essentially based on a need -- this was 22 a -- this particular device was based on a technology 23 called control channel technology which utilized the 24 old analog cellular network and utilized elements of the 25 control side of that network to transmit small amounts

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Page 13 1 of data. 2 Because of the way that data transmission 3 was constrained, there was a need to have fairly 4 specialized interfaces to the device to make sure that 5 that information could be efficiently communicated over 6 the air, so we took that -- I took those needs in terms 7 of getting the size down and being able to control what 8 was being sent as well as to configure the radio as it 9 was needed at any given point and defined the specific 10 messaging schemes that were necessary to conduct those 11 activities. 12 Q. So did you define goals for the technology -- 13 requirements for the technology? Is that what you mean 14 when you defined the architecture for it? 15 A. I am the author of the interface specification 16 including how the packets are framed, you know, to -- 17 you know, from, you know, I want this function to -- 18 exactly actually how the packets are framed. On the 19 hardware side I did the original block diagram that went 20 to the actual hardware design engineers who did the 21 circuit design. 22 Q. So when you say a block diagram, you mean 23 basically the -- well, let me just strike that. 24 When you say block, you prepared the block 25 diagram. What form does that take?	Page 15 1 very specialized systems. 2 And I was responsible for the design of a 3 newer generation of that platform that included a new 4 method of controlling the device where it could be 5 controlled by a dedicated control panel, but also it 6 was able to be controlled by external equipment. For 7 example, the switching panels that are used in a TV 8 studio, we could automate that -- the operation of our 9 unit to be controlled actually by these external units. 10 Q. You also talked about doing in the '90s 11 wireless data communications I think is what my notes 12 say. Is that the same thing that -- is that basically 13 the same category as the cellular radio that you worked 14 on for Standard Communications? 15 A. The cellular module activity was actually 16 an outgrowth of my involvement in the semiconductor 17 industry. I went to work for Philip Semiconductors 18 where I was responsible for their -- from a technical 19 marketing perspective -- their networking product. 20 Shortly after I joined them, I was asked to 21 lead a program where they could more effectively present 22 their traditional components that were used in cell 23 phones and other wireless technology to traditionally 24 datacom types of companies, so they had a great presence 25 in selling to cell phone manufacturers, for example, but
Page 14 1 A. It's a typical hardware device block diagram 2 that would include identifying the major component 3 elements within that device, the controller, the key 4 elements of the radio, the key elements of the external 5 interface circuitry at that level and what those, you 6 know, interfaces might be, the power supply, you know, 7 again the major -- the major blocks not down to the 8 individual, you know, circuit schematic level. 9 Q. You weren't doing the circuit semantics and 10 the component selection, that side of it, right? 11 A. Generally, not. On the -- some of the key 12 components selection, I did then and I even do today, 13 but the actual in-circuit implementation, I have a 14 hardware design team that does that all day long. 15 Q. Going back to some of the other experience you 16 mentioned, you talked about control systems in the video 17 industry. What in particular did you work on in the 18 video industry? 19 A. The systems I was involved with were image 20 storage systems. Prior to the days of being able to 21 do images readily on PCs, the images that might be used 22 in news production, for example, put up behind the 23 newscaster that says train crash or, you know, some 24 other piece of information or photograph, those images 25 were all stored in digital format and recalled using	Page 16 1 they didn't have -- there was this new emerging wireless 2 data technology out there with the -- with Wi-Fi and 3 other technology starting to break out, and they wanted 4 to extend their wireless capability, their wireless 5 components into that marketplace. 6 So we were into the datacom marketplace, so 7 we were pitching companies who make routers and modems 8 and things like that, and so I developed a strategy 9 for presenting those products to that marketplace; 10 and as a result of that, we developed some reference 11 application -- you know, I defined specific reference 12 applications that were needed, and we actually designed, 13 did -- I had the engineering team design a reference 14 design. 15 But what we found was that when we went to 16 go present to these non-RF, nonwireless types of 17 companies, this highly technical RF technology-based 18 solution, they weren't comfortable with that. In fact 19 if you've ever seen a block diagram of a radio, you 20 know, we've got a lot of shapes and lines and so forth, 21 and that's all they perceived was shapes and lines. 22 They didn't understand that these were, you 23 know, these elements reflect, you know, a mix or an 24 amplifier and various other blocks. They said -- you 25 know, the response we would typically get is "That's all

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Page 17 1 fine. See the dashed line around all those funny 2 shapes? Just give me something that fits -- that does 3 that." 4 And so out of that we basically took that 5 reference design the next layer, the next step forward, 6 and out of that was born the idea that we offer it as a 7 module. Unfortunately, we weren't able to offer that 8 as Philips Semiconductors, and it was at that point that 9 that concept basically got moved out, got spun out of 10 Philips Semiconductors, and that became the business 11 that I ultimately ran under Standard Communications. 12 Q. What was your title at Standard 13 Communications? 14 A. I was director of wireless datacom division. 15 Q. Earlier you said in the semiconductor work 16 that you did you developed some ideas from a technical 17 marketing perspective. I think that was the term 18 you used. What do you mean by technical marketing 19 perspective? 20 A. The two roles that I actually had while I was 21 at Philips were product manager and technical marketing 22 manager. Initially I was in the technical marketing 23 role. It's very similar to product management, but 24 that was the working title that I had when I was driving 25 the wireless data activities.	Page 19 1 A. That was included in the role. Again, you 2 know, in that role I did go to, you know, actually 3 blocking out exactly what was needed, not just at a spec 4 level, but at a -- kind of a high level, architectural 5 level as well and then defining the needs of those 6 blocks that would be utilized within the design or 7 within the solution that was offered. 8 Q. Is that common in the industry that a 9 nonengineer would be designing architecture at the level 10 you're talking about? 11 A. It's not uncommon. It's -- my experience has 12 been it's not the norm, but my career has not been the 13 norm when it comes to that either. 14 Q. All right. And we got through working with 15 Standard Communications. Was there anything else before 16 CalAmp? 17 A. That business actually went through several 18 different iterations. It was spun out of Standard 19 Communications, went independent under an angel investor 20 for a couple of years and then was acquired by CalAmp 21 in -- I believe it was April of '06. 22 Q. And so you came in to CalAmp as a result of 23 that acquisition? 24 A. That's correct. 25 Q. Okay. In your role as the director of systems
Page 18 1 The focus there was more on developing more 2 of a go-to market strategy for a portfolio of products, 3 so I wasn't -- it wasn't like I was product managing a 4 specific product. We had products coming from several 5 different groups, and I was basically responsible for 6 developing the approach to that new marketplace, to the 7 wireless data marketplace, with components coming from 8 several different groups. 9 Q. Well, but I'm trying -- I'm just trying to 10 make sure that I understand technical marketing 11 perspective. Is that basically just -- is it 12 essentially a marketing or advertising role where you're 13 trying to identify the need, whatever the technical 14 needs of customers and potential customers are out in 15 the market? Is that the idea? 16 A. That was a piece of the role but not all of 17 it. Again, you know, it came down to defining very 18 specific solutions, so it wasn't just the market side 19 but also defining, you know, the actual solutions that 20 we would implement to address those markets. 21 Q. So when you're trying to develop these 22 solutions, that basically means you're determining what 23 features and functionality the market wants to see, 24 and you're calling out those features for a particular 25 product; is that right?	Page 20 1 engineering and technology do you have any direct 2 reports? 3 A. No, I don't. 4 Q. All right. Who do you report to? 5 A. I report to the general manager and senior 6 vice president of our mobile resource management 7 division. 8 Q. And is that the same person, the GM and senior 9 VP? 10 A. Yes. 11 Q. And who is that? 12 A. Greg Gower. 13 Q. G-o-w-e-r? 14 A. Yes. 15 Q. And you said that he's the GM and senior VP of 16 the division; is that right? 17 A. Of the business. It's actually the mobile 18 resource management, and we refer to it as MRM business 19 unit. 20 Q. And can you remind me in addition to MRM what 21 the other business units of CalAmp are? 22 A. Within the wireless datacom division we have 23 MRM, and we have what we refer to as wireless networks, 24 and then a sep- -- there's a separate division for 25 satellite.

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Page 21 1 Q. Are there just two divisions of CalAmp? 2 A. Two divisions. One is just a single business. 3 That's the satellite. And then the second division is 4 wireless datacom which is split into MRM and wireless 5 networks. 6 Q. And the -- Mr. Gower is the GM and senior VP 7 just of the MRM or of the -- 8 A. Yes. 9 Q. -- wireless? 10 A. That's correct. 11 Q. MRM? 12 A. Yes. 13 Q. Can you tell me generally what the MRM 14 business unit -- well, strike that. 15 Are there certain product categories that fall 16 within the MRM business unit? 17 A. The MRM business unit is responsible for 18 all of the hardware used in various mobile tracking 19 applications as well as many of the telemetry markets 20 that CalAmp serves. There's a small group within the 21 wireless networks organization that does some hardware, 22 but it's limited to more high level router types of 23 functionality. All of the -- our main focus is really 24 mobile tracking devices. 25 Q. Does mobile tracking include both vehicle and	Page 23 1 cellular connectivity through to their server, but they 2 don't want to develop their own back end. They want -- 3 you know, they want to look at it just from purely an 4 application standpoint. 5 So they'll do the user interface, the 6 application, the value added application that faces the 7 server or faces the customer; but they don't want to do 8 all the stuff that goes on in between dealing with the 9 various cellular carriers, the protocols that need to go 10 on behind it. So we provide a service that does that 11 for them. In addition that group provides, you know, 12 full solutions where they'll take hardware from our 13 portfolio, combine that with service, with -- in some 14 cases even, you know, a back end software solution as a 15 complete package to a customer. 16 Q. So meaning that the wireless network side 17 provides both -- strike that. 18 So is one example of a full solution providing 19 the mobile tracking devices from MRM plus the software 20 implementation at the customer side? 21 A. Yeah. 22 Q. And I guess I should check. When we're 23 talking about CalAmp's customers, are we talking about 24 integrators or are we talking about end users or both? 25 A. CalAmp does not generally in any of our
Page 22 1 asset tracking? 2 A. Yes, it does. 3 Q. And can you define for me what you mean by 4 telemetry? You mentioned that that was something 5 different than mobile tracking. 6 A. There are some applications that we serve that 7 are not -- when I describe mobile tracking, it's really 8 a device that combines a GPS receiver, some type of 9 communications device for either tracking it as it goes 10 along or determining the location and status of it; but 11 we have some other applications where the customer, it's 12 either going into a fixed application or the customer 13 has no interest in location information, so they're just 14 doing, you know, remote control status, monitoring, 15 simple things like that. It's a small part of our 16 business, but it is another element that we serve. 17 Q. And I know you mentioned that the wireless 18 network side doesn't do much hardware. What does the 19 wireless network side of the business unit do? 20 A. They are primarily a software and solution 21 provider. 22 Q. Software for what? 23 A. On the -- they provide software as a service 24 type of solution for providing essentially a smart 25 datapipe for a company who needs, for example, you know,	Page 24 1 businesses sell directly to end users. In this small 2 little set of high end devices that I mentioned that are 3 more like data routers, in some of those cases they do 4 sell directly to the end market; but that's a small 5 portion of the business. 6 In these turnkey solutions that I described 7 as well as an MRM's customer base, we're typically 8 selling to an OEM or a solution provider who is then 9 branding that, adding their piece of value to it. If 10 it's an MRM customer, they're doing all the software and 11 the delivery side of things facing the customer, and 12 they do all the marketing to the end customer, the end 13 market. Our business model is essentially an OEM-type 14 business model. 15 Q. And when you say "OEM," can you give me some 16 examples of who you mean? 17 A. You know, we provide -- you know, you've seen 18 the customer list. You know, we provide product to 19 them in bulk, so a customer like, for example, 20 Fleetmatics -- you know, they're a well-known player 21 in the marketplace -- we provide thousands of units to 22 them that they turn around and they offer to various 23 individual small fleet operators as part of their whole 24 solution. 25 Q. So, presumably OEM is original equipment

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Page 25 1 manufacturer, right? 2 A. Uh-huh. 3 Q. And so what -- for example, with Fleetmatics 4 what equipment is Fleetmatics manufacturing if you 5 provide them with the tracking devices. 6 A. Essentially we provide them with a private 7 labeled black box, if you will. That black box has 8 been customized from a behavioral personality standpoint 9 to do exactly what they want. 10 They offer that as part of a solution that 11 includes all of the back end software, the mapping 12 software, the fleet management software that takes 13 advantage of the information coming from the device 14 and presents that in a meaningful way to their end 15 customers. 16 Q. What do you mean by "behavioral personality 17 standpoint"? 18 A. The LMU product is essentially a platform. 19 In and of itself it does nothing. It effectively does 20 nothing until it's programmed using the PEG script -- 21 and I know you guys have had some interest in that -- 22 but it's programmed using the PEG script to define 23 the specific functionality and behavior within that 24 including what it does with I/O events, you know, what 25 criteria it uses for sending messages, what information	Page 27 1 A. The -- can you please clarify what you -- your 2 question specifically with regards to parameters? 3 Q. Well, and that's probably because I get all 4 these different terms confused between parameters and 5 accumulators and conditions and events and all the other 6 things. 7 A. Welcome to the world of PEG. 8 Q. Yes. So let me see. Is there a -- for 9 terminology purposes is there a hierarchy in terms of 10 the data or sets of data that are found with an LMU, 11 so, for example, you might have the firmware, and then 12 there's the top level parameters or event codes or 13 something and then within that subsets? I mean I'm 14 just -- I haven't seen any document that sort of defines 15 it in a way that we can understand the -- sort of the 16 hierarchy of terminology between parameters, 17 accumulators, event codes and all of the other lingo 18 that you guys use. 19 A. Uh-huh. 20 Q. So is there a hierarchy in those sorts of -- 21 the programming side? 22 A. I don't know that there's necessarily a 23 hierarchy in that respect. There are certainly 24 different types of events. I believe you've already 25 deposited Pete Hergesheimer who is our senior software guy
Page 26 1 it keeps track of. That's all definable within this PEG 2 environment, and every customer defines that a little 3 bit differently. 4 Q. So when you provide a solution to Fleetmatics 5 with their own behavioral personality, does that mean 6 that you're provisioning LMUs with a particular script 7 set? 8 A. Our production -- in our production mod- -- 9 the simple answer is yes. Our production model includes 10 us installing that script in production. Whatever 11 script the customer has defined for that particular 12 part number is installed on that as it comes out of 13 production test. 14 Q. Now do the -- do individual customers or OEMs 15 have their own dedicated firmware or is the firmware 16 standard across all customers? 17 A. The firmware -- we do have a few exceptions 18 where customers have done their own firmware, but we're 19 talking about a very small number of customers, one or 20 two, I think, that actually made it to production in 21 some form. Everyone else is using standard firmware, 22 and the configuration is all done via script. 23 Q. And if they're using the same firmware, then 24 the -- is the -- are the available parameters all 25 selected by CalAmp and defined by that firmware?	Page 28 1 within the organization, and he defined a lot of this; 2 but the way PEG works is you have a series of triggers, 3 and you have a series of actions. 4 And then they can each be modified in certain 5 ways; but when it comes down to it, when you're writing 6 a PEG script, you're saying "If I get this kind of 7 trigger, this is what I want to do with it," okay? The 8 concept of accumulators and flags and things like that 9 are basically programming mechanisms within PEG to keep 10 track of that information internally so that you can 11 then later on decide how you're going to apply that 12 information. 13 Q. Well, so I understand that -- I seem to recall 14 that it was trigger, condition and actions were sort of 15 the three pieces for a script for a particular event -- 16 A. Uh-huh. 17 Q. -- right? 18 A. Uh-huh, uh-huh. 19 Q. Okay. And then those are -- and those 20 available triggers, conditions and actions, is there a 21 defined set of those that are available through CalAmp? 22 A. That's essentially what's defined within the 23 PEG programming guide. 24 Q. And then my recollection was that parameters 25 were defined by CalAmp through firmware and that those

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Page 29 1 aren't things that can be adjusted by your customers 2 or end users. Is that your understanding? 3 A. Well, again parameters per se is not -- you 4 know, it is not an element within the LMU side of 5 things so much -- I want to make sure I understand your 6 question in terms of are we talking about the LMU and 7 basic PEG functionality or are we talking about OBD 8 types of parameters per se? 9 Q. Okay. Well, let's start with parameters on 10 the LMU side, and is there -- there's -- my recollection 11 is that there's a defined universe of LMU parameters 12 that's defined by the firmware; is that right? 13 A. There is -- there are -- those are fixed 14 within the LMU. 15 Q. And I think -- I think where I started this 16 discussion was really just for determining whether OEMs 17 or particular customers of yours get their own special 18 set of LMU parameters or whether they're all going to be 19 the same. 20 A. The set of available information within an 21 LMU that customers have the ability to work with is 22 predefined, but it evolves over time, okay? People will 23 ask for additional capabilities, and we don't normally 24 do that as a -- on a custom basis. It will just become 25 part of the universe of -- the expanded universe of	Page 31 1 changes that are needed within, you know, the existing 2 product or, you know, a new solution if that's what's 3 required and try and marry up the appropriate, you know, 4 piece of technology to be able to solve that customer's 5 problem. 6 Typically what will happen is I'll work with 7 the sales team to provide them with technical input 8 to make that proposal back to that customer. I will -- 9 assuming we want to either do that on a customer- 10 specific basis or whether we want to do that on a -- 11 roll it into the next generation platform, which is more 12 the norm, what I will do is then I'll collect up all of 13 the needs for that next generation platform or that new 14 platform that we might be offering, identify what key 15 new blocks might be necessary. 16 It might be a new radio module or it may be 17 some other supporting technology, and I will define that 18 in a commercial requirements document that captures both 19 the technical needs as well as the commercial needs. 20 You know, it's very similar to a requirements document 21 that's generated in product management throughout the 22 industry in terms of what's typically included in that 23 document. 24 I will -- the difference in the way we do it 25 is we'll typically take the technical definition an
Page 30 1 available elements that can be utilized. 2 Q. So I think you said you don't have any direct 3 reports. Do you have a supervisory role over 4 individuals or departments within CalAmp? 5 A. Not directly. My role tends to have lines 6 that work almost in a cross functional sort of model 7 where, you know, I will kind of be the technical driver 8 or lead behind the scenes advocating things; but I 9 have no direct management of specific or supervision 10 of individuals, you know, directly under me. 11 Q. I'm just trying to figure out if you're the 12 director of systems engineering and technology, is there 13 anyone you're directing? 14 A. I direct -- I -- from a technical direction 15 standpoint, I'm influencing all the time. From a 16 supervisory perspective I have no direct reports. 17 Q. Okay. So when you determine a need in the 18 market that you want CalAmp to address, how does that -- 19 what do you do once you determine that particular need? 20 What's the next step? 21 A. Well, typically what ends up happening is 22 that need came, you know, came out of a request from a 23 specific customer through our sales organization. We're 24 very much sales driven. And what will happen is I'll 25 try and match up those needs with, you know, either	Page 32 1 extra layer down in that document, you know, and 2 identify specific processors, specific radios, and 3 that's predefined before it goes over to the design 4 engineering group. 5 If there's a new technology involved, 6 typically even after that document is created, I will 7 continue to be the driver behind the implementation of 8 that particular technology to make sure that, you know, 9 there's a clean handoff and that the implementation of 10 that technology actually matches what's needed in that 11 particular product or for that particular market need. 12 Q. So the first step in all of this is learning 13 of a need from particular customers through your sales 14 team. Is that basically where most of the initial 15 impetus is for either creating a new product or adding 16 new functionality? 17 A. Yeah. The majority of -- when it comes to 18 actually implementing or documenting something to move 19 forward on, that's -- almost always a customer need 20 starts that. 21 Q. Does a customer provide you with a request for 22 quotation or something? 23 A. It can start in many ways. It may be a formal 24 RFQ. It may be a result of a call or a visit that the 25 salesperson has made. In some cases they'll know in

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Page 33 1 advance. They've had a discussion with the customer. 2 They'll actually involve me, you know, almost 3 immediately in the discussions with the customer in 4 terms of, you know, customer XYZ has a need, you know, 5 that goes beyond the product that we have today, you 6 know. Is there a way we can solve this for them? 7 Q. So that's going to be presented to you 8 typically from the sales team at CalAmp? 9 A. I'll typically get that either directly from 10 the sales team or sometimes it will come back through 11 our GM, through my boss. 12 Q. And do you end up doing further investigation 13 and direct communication with the customer once you get 14 that lead from the sales team? 15 A. Oftentimes. 16 Q. And once you understand the issue of the 17 customer, you look at the current product portfolio to 18 see if you can address that need through current 19 products? 20 A. Typically by the time I get involved, standard 21 products have already been ruled out as a fit for the 22 solution, but what I will look at is, you know, A, you 23 know, is there something we can do to easily enhance or 24 modify an existing product to meet those needs; and, 25 if so, I'll provide guidance on that.	Page 35 1 typically is the same. It just varies in scale. You 2 know, we do the commercial requirements document to 3 either define, you know, the changes that are necessary 4 on the platform or to define a new platform, but it's 5 the same process. 6 Q. So you would do a new CRS even if you're just 7 adding functionality to an existing product? 8 A. If it's minor changes, no. If it's a 9 significant change -- typically if it's a change to 10 existing product -- we only would do a CRS if it 11 involves a major hardware change. On the software side, 12 those tend to be lesser impacts, and we generally won't 13 do a CRS unless it's going to be a major project. 14 Q. And if it's not going to be major, is there 15 a -- some sort of engineering change order or something 16 that would be implemented or -- 17 A. We have a request ticket system that, you 18 know -- you know, all kinds of customer and field-driven 19 issues might come in on it. It could be bug reports. 20 It could be enhancement requests. There's a range of 21 inputs that go into that system, and the software team 22 works to address each of the tickets that goes into the 23 system. That's essentially their work flow management. 24 Q. So you have a request ticket database or 25 tracking system to be able to track minor system
Page 34 1 If not, then we go into the next step of 2 identifying what do we need to bring into this product 3 either in a new design, additional elements, a 4 different, you know, chipset, you know, whatever might 5 be needed to meet the new market or customer need. 6 Q. Now are you able to determine in your role 7 whether the ability to meet the customer need is one 8 that can be met with solution versus hardware? I'm 9 sorry. Strike that. 10 In your role are you able to determine whether 11 customer needs can be met by changing software versus 12 modifying hardware to achieve the solution? 13 A. In many cases, yes, but in many cases I'll 14 also take it back to Pete and the others in the software 15 organization to confirm my assumptions to be accurate 16 and implementable within a -- without big time impact 17 or without a significant impact from architectural 18 constraints or other things, you know, behind the 19 scenes. 20 Q. So once you've determined the customer need 21 and you've decided whether it's changing an existing 22 product or creating a new product, is the next step 23 the same regardless of whether you're going to change a 24 product or create a new product? 25 A. Unless it's just a very minor change, it	Page 36 1 changes. Is that the -- 2 A. Yes. 3 Q. -- way it works? 4 And then if not, then you'd go to a new CRS? 5 A. Yes. 6 Q. And then once -- are you the one that develops 7 all the CRS? 8 A. Today, yes. 9 Q. Has that always been the case since you've 10 been with CalAmp? 11 A. For this business, yes. There are a few that 12 are done by others, but it's by exception. That's the 13 exception rather than the rule. 14 Q. Within MRM? 15 A. Within MRM I am currently -- I apologize. 16 Within MRM I am the primary source for CRS documents. 17 Q. And I'll just make sure that I got my question 18 on the record before you started. So for generated CRSs 19 within MRM, you're pretty much the guy. 20 A. That is correct. 21 Q. Okay. And once a new CRS is generated by you, 22 what's the next step? 23 A. The CRS document goes through an approval 24 process which includes review and usually a review 25 meeting and is subsequently signed off by engineering,

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Page 37 1 both software and hardware, as well as key members of 2 the sales team and our product validation team, and 3 then the program is officially kicked off, handed over 4 to engineering for implementation. 5 Q. Does the review process always include people 6 from hardware engineering? 7 A. Yes. 8 Q. Does it always include people from software 9 engineering? 10 A. Yes. 11 Q. The review process always includes sales 12 folks? 13 A. Yes. 14 Q. And does the review process always include 15 product validation folks? 16 A. Yes. 17 Q. Any other departments that have to review the 18 CRS? 19 A. No. 20 Q. How long does that review process normally 21 take? 22 A. Depending on the document, it may be a few 23 days to a few weeks. Simple-type things we may just 24 meet and go through it in real-time and sign off. 25 Q. That may have answered my next question.	Page 39 1 closer to something that's ready for release, they will 2 become increasingly engaged because ultimately they're 3 the ones that have to do the vali- -- the final 4 validation testing and sign off before it can be fully 5 released to production. 6 Q. Do the product validation folks have to create 7 new validation tests in order to validate new products? 8 A. In some cases, yes, if there's new 9 functionality that isn't currently covered by a solution 10 that they have. 11 Q. And is that requirement for new validation 12 testing part of the CRS? 13 A. In some cases it will be identified in the 14 CRS. They go through their own review with the hardware 15 and software engineers as it's being developed to make 16 sure that any differences are covered because, you 17 know, many times the differences that impact validation 18 testing or that impact production testing may come 19 more out of implementation than necessarily just the 20 individual, you know, new features. 21 MR. SANTURRI: I think we've been going about 22 an hour, so why don't we go ahead and take a break. 23 THE VIDEOGRAPHER: Off the record at 10:06 24 a.m. 25 (Recess.)
Page 38 1 Is there some sort of tracking system or way that you 2 memorialize the review process and the individual 3 reviewers? 4 A. There's actually a sign off document. The 5 front page of the document is actually signed -- 6 physically signed off. 7 Q. And then once the CRS is approved, then it 8 goes to engineering for implementation? 9 A. Yes. 10 Q. And I assume that once the CRS is approved, 11 there's no involvement by the sales folks thereafter, 12 right? 13 A. Within our organization the sales folks tend 14 to be the program advocate. It's something that's being 15 driven by a specific customer need, so they actually 16 remain fairly engaged at a high level. They're not -- 17 obviously not the ones making the design calls, but 18 they -- they're engaged, you know, very much on the 19 customer advocacy and helping to expedite the program 20 level. 21 Q. And after the CRS is approved, is the product 22 validation team involved from thereon? 23 A. Their involvement early on is -- in typical 24 fashion will be minimal to start during the early phases 25 of the design. As development progresses and we get	Page 40 1 THE VIDEOGRAPHER: Back on the record at 10:18 2 a.m. 3 BY MR. SANTURRI: 4 Q. All right, sir. I'm going to hand you what 5 was previously marked as Exhibit 1 to the deposition of 6 Mr. Hergesheimer. Can you tell me what Exhibit 1 is? 7 A. I'm looking at a CalAmp datasheet for the 8 LMU-3000 product. 9 Q. And were you involved in the development of 10 the LMU-3000? 11 A. I was. 12 Q. And what was your role in developing the 13 LMU-3000? 14 A. My role on the 3000 was at the CRS level. 15 I provided the requirements document for that. The 16 various blocks within it were predefined by our existing 17 partnerships, and so I didn't do a lot of component 18 selection type of work, so it was really limited just 19 to the CRS document. 20 Q. Was there a particular market need that you 21 identified leading up to the creation of the CRS for the 22 LMU-3000? 23 A. The 3000 was driven by a general market need 24 that we heard from a number of customers. The primary 25 interest was coming from a need for a simple

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Page 41 1 installation type of solution and the opportunity to 2 enhance the capability of the product that we could 3 offer with certain data items coming off of the vehicle 4 bus. 5 Q. Simple installation meaning what? 6 A. Traditionally our devices required 7 installation of a black box unit underneath the dash 8 boards, splicing of wires, connecting up power and so 9 forth whereas the LMU-3000 was our first product in 10 what is referred to as the OBD2 form factor where it's 11 a self-contained box that just plugs into an existing 12 connector within the vehicle system. 13 Q. Didn't you have an LMU-2000 before this? 14 A. The 2000 is actually an LMU-3000 derivative. 15 Q. So the LMU-3000 was first? 16 A. Yeah. It's actually a simplified 17 implementation of the 3000. It does not have an actual 18 interface to the data system within the vehicle. It 19 merely uses the connector as a mounting and power 20 source. 21 Q. So the LMU-2000 uses the OBD2 port for power? 22 A. Yes. 23 Q. But it doesn't read data off the bus? 24 A. That is correct. 25 Q. And the LMU-3000 was the first to read data	Page 43 1 MR. SANTURRI: 16? 2 (Exhibit 16 marked.) 3 BY MR. SANTURRI: 4 Q. I'm going to hand you what's been marked as 5 Exhibit 16. This is a second supplement to the same 6 interrogatory, and you'll see on page 5 that it says 7 CalAmp has identified customers for whom it has loaded 8 scripts related to geofencing, Attachment A, or speed 9 alerts, Attachment B, into the accused product. Do you 10 see that? 11 A. Yes. 12 Q. If you take a look at Attachment A, which 13 provides us with customers for whom geofencing scripts 14 were loaded -- 15 A. Uh-huh. 16 Q. -- it looks like there's not complete overlap 17 with the customers that we had in Exhibit 15; and if we 18 get on the list, for example, in Exhibit 15, we have 19 someone called Carvoyant, C-a-r-v-o-y-a-n-t, and I don't 20 see them listed in Exhibit A of Exhibit -- Attachment A 21 of Exhibit 16. 22 A. Okay. 23 Q. And so my question is do you know which of 24 these two lists is more reliable in terms of customers 25 who have had scripts loaded into the accused products?
Page 42 1 off the onboard diagnostic port? 2 A. That is correct. 3 Q. Do you recall -- mark this as Exhibit 15. 4 (Exhibit 15 marked.) 5 BY MR. SANTURRI: 6 Q. All right. Sorry. I've handed you what the 7 court reporter has marked as Exhibit 15. This was the 8 first supplemental response by CalAmp to Omega's first 9 set of interrogatories, and you'll see that on page 5 10 through 7 of this document is a list that according to 11 CalAmp includes identities of customers for whom CalAmp 12 had loaded scripts for geofencing into an accused 13 product. Do you see that? 14 A. Yes. 15 Q. Do you know whether any of the customers we 16 have on Exhibit 15 were customers that expressed a need 17 for being able to read information off the data bus to 18 CalAmp? 19 A. I can't speak specifically to the details of 20 all of them, but in general they would have all been 21 looking for some form of OBD data in order to have been 22 on this list. This list was actually produced with 23 specific search criteria based on the LMU-3000 or 3030 24 product as requested. 25 THE REPORTER: 16.	Page 44 1 A. I would say that the newer list, the one on 2 the document you just handed me, would be most likely 3 the more accurate. It was generated based on more 4 specific criteria and is also very fresh data. 5 Q. So do you know whether, for example, Auto Tek, 6 which is listed in Exhibit 15, whether they actually 7 had LMU-3000s or 3030s with geofencing loaded into them? 8 A. It would require someone to go back and look 9 specifically to understand, you know, the nature of 10 the discrepancy. The criteria that was used for the 11 original search, as I implied, was more general. The 12 criteria was further refined in this search and in the 13 subsequent search that drove the second document you 14 handed me whereby, you know, we were able to actually 15 correlate a script, a customer and units actually using 16 that script. 17 So it wasn't just a script that somebody wrote 18 and never deployed or only used for testing and never, 19 you know, left associated with a unit. So that's why I 20 say this one should be, you know, much more accurate 21 in terms of, you know, reflecting the actual units and 22 operation and customers using them. 23 Q. And when you say "this one" being more 24 reliable, you're saying Exhibit 16, right? 25 A. Yes, that's correct.

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Page 45 1 Q. Okay. Now if you can look at Attachment A, 2 and the first column says "Name," and certainly I see 3 some references to the LMU-3000 or 3030, but can you 4 tell me who defined the name that shows up in that 5 column? 6 A. That -- the -- that particular field or 7 that column is a free form text field that is just a 8 descriptive name given to that particular script by 9 either the application engineer who developed it or the 10 customer who it is for or who developed it. There's 11 really no standard for the naming convention there. 12 Scripts are actually managed with an individual -- 13 within an individual customer account and identified 14 by a script identification number and configuration 15 identification number which are in the other columns. 16 Q. All right. Well, that was going to be one 17 of my next questions. We have a script column that has 18 numbers like 3, 12, 30, 50. Can you explain what that 19 script number is? 20 A. That is basically the identifier for that 21 script. Again it's not an automatic sequence or a 22 controlled sequence. Customers may implement their own 23 conventions for identifying or differentiating between 24 different scripts. Some may do it based on certain 25 features. Some may do it based on, you know, what	Page 47 1 determine whether reports were actually generated based 2 on the scripts we have in Exhibit 16? 3 MR. KAUTH: Objection to form. 4 THE WITNESS: Yeah. I was going to ask to 5 please clarify what -- 6 BY MR. SANTURRI: 7 Q. Okay. 8 A. -- you're looking for. 9 Q. Sure. Is there any way to -- strike that. 10 Does PULS know whether a -- the scripts that 11 we have listed in Exhibit 16 have actually created or 12 generated an event report as a result of the script? 13 A. No. 14 Q. We know that -- but we do know that the 15 scripts have actually been deployed in the units for 16 these particular customers. 17 A. That is correct. Part of the selection 18 criteria for this report was that that script has been 19 applied to a unit that is online and regularly reporting 20 into PULS. 21 Q. And PULS has the actual text of the script for 22 these -- each of these items listed in Exhibit 16? 23 A. There is no text to a script -- 24 Q. Okay. 25 A. -- for an LMU.
Page 46 1 client of theirs that particular script is for, but it 2 is essentially a unique identifier for that specific 3 script. 4 Q. A unique identifier for the particular 5 customer? 6 A. Yes. 7 Q. But that's not a -- the script numbering is 8 not defined by CalAmp; is that right? 9 A. No, it is not. 10 Q. Okay. I mean I know that there are other 11 companies that have script numbers for particular events 12 that are defined and then within the script it can be 13 changed, so this is -- the numbering that we have here 14 is a number that was defined by the customer; is that 15 right? 16 A. That is correct. 17 Q. And the config number, is that also defined by 18 the customer? 19 A. Yes, it is. 20 Q. And do you know how this -- well, strike that. 21 From what source was the data that we have in 22 Exhibit 16 pulled? 23 A. This data was pulled by a database query from 24 our PULS Device Management System. 25 Q. And is the PULS Management System able to	Page 48 1 Q. All right. So there's some format that a 2 script is written in, right? 3 A. That is correct. 4 Q. Okay. And what do you call that format? 5 A. Well, it's essentially a comma-delimited data 6 file. What you see is small numeric strings that are 7 comma delimited that basically describe the actions 8 and modifiers and triggers that we discussed earlier. 9 Q. And that specific data is within PULS 10 obviously. 11 A. Yes. 12 Q. Does PULS indicate whether any of these, the 13 scripts we have in Exhibit 16, were written or prepared 14 by CalAmp versus by the customer? 15 A. No, it does not. 16 Q. Does the -- does PULS associate a particular 17 field application engineer with scripts or customers? 18 A. No. 19 Q. Is there a document somewhere at CalAmp 20 that identifies the or associates particular field 21 application engineers with particular customers? 22 A. That's managed within the individual sales 23 teams. 24 Q. But the individual sales teams have some sort 25 of list of what field application engineer services what

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Page 49 1 customer? 2 A. Generally, yes, in some form or another. They 3 may or may not be formalized. 4 Q. Coming back to Exhibit 1, that was the sales 5 slick or datasheet -- 6 A. Yes. 7 Q. -- for the LMU-3000, it says in one of the all 8 cap statements there "Competitive Price, Competitive 9 Technology, Competitive Edge." Do you see that? 10 A. Yes. 11 Q. Let me start by asking who within the industry 12 are CalAmp's competitors for devices like the LMU-3000? 13 A. Typically there's many small companies, but 14 primarily the customer -- the competitors that we see in 15 our markets include a company called Xirgo, X-i-r-g-o, a 16 company call Danlaw. 17 Q. Spell that one. 18 A. D-a-n-l-a-w, and a company called Novatel, the 19 same company that does cell phones and the Mi-Fi 20 cellular router. 21 Q. Formerly Enfora? 22 A. They own Enfora or they acquired that 23 business. 24 Q. Anybody else that's primary competitors? 25 A. Not that I'd consider primary.	Page 51 1 you know, from the bus and being able to communicate 2 that. There are some features that, you know, they have 3 that we don't and secondary features that they have 4 that we don't and vice versa, but, you know, the key 5 functionality in terms of, you know, tracker, OBD form 6 factor, and the OBD data interface are really key. 7 Q. When you say tracker, do you mean GPS and 8 cellular or are those two separate things? 9 A. No, the combination. 10 Q. So each of the -- the competitors all have 11 both GPS and cellular, right? 12 A. That's correct. 13 Q. And then they also are in the OBD form factor? 14 A. Yes. 15 Q. And they also read data from -- at least read 16 data from the OBD port? 17 A. That's correct. 18 Q. And generally speaking in terms of deciding 19 what features to include in products, is that the same 20 analysis as what we talked about earlier in terms of 21 identifying market needs? 22 A. Generally, yes. 23 Q. And with respect to the LMU-3000 you said that 24 there were a number of customers that wanted the OBD, 25 the ability to pull -- read OBD data.
Page 50 1 Q. Do you know how -- do you know whether the LMU 2 is priced competitively? Well, strike that. Let me 3 come back. 4 Do you know the product that Xirgo offers that 5 competes with the LMU-3000 or 3030? 6 A. I'm familiar with their offering. 7 Q. What is it? 8 A. They actually offer several. The one that's 9 most similar is probably their XT2 -- I believe it's 10 XT-2000 is the designator they use. 11 Q. Do you know what Danlaw offers that competes 12 with the LMU-3000 or 3030? 13 A. I don't know the model numbers on the other 14 offerings off the top my head. 15 Q. But both Danlaw and Novatel have products that 16 are competitive with the LMU-3000? 17 A. They have comparable products that we compete 18 against regularly in the marketplace. 19 Q. And in terms of defining what a comparable 20 product is, is there is a certain feature set that you 21 would use to sort of define what's competitive with the 22 LMU-3030 or 3000? 23 A. Basically, you know, it's an OBD form factor 24 solution, you know, with GPS tracking. It has an OBD 25 data interface that's capable of, you know, taking data,	Page 52 1 A. Yeah. 2 Q. Do you know whether any of the competitors 3 that we talked about, Xirgo, Danlaw and Novatel, offered 4 their competitive solutions at the time the LMU-3000 5 came out? 6 A. Yes, both -- I believe both Xirgo and Danlaw 7 both had solutions already in the marketplace. 8 Q. Novatel did not? 9 A. I don't believe Novatel's came out until 10 later. 11 Q. Your -- Exhibit 1, the sales slick, says 12 "Competitive Price." Do you know whether the LMU-3000 13 is competitively priced as compared to the Xirgo unit? 14 A. The 3000 we always tried to competitively 15 price as best we could, but it's -- Xirgo often was able 16 to undercut us on that one. 17 Q. How? 18 A. Their -- we believe it's because of a 19 combination of lower operating costs and a more simple 20 hardware approach. 21 Q. What about Danlaw? Are you competitive in 22 terms of pricing between the LMU-3000 and whatever 23 models they offer? 24 A. Based on our experience in the marketplace we 25 believe so.

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Page 53 1 Q. And what about Novatel? Is the LMU-3000 and 2 3030 competitive in pricing with the comparable Novatel 3 product? 4 A. So far we've been -- well, the 3030 is the -- 5 the 3000, as far as I know, has never really gone up 6 against the Novatel. 7 Q. Because the 3000 was gone before Novatel came 8 out? 9 A. Well, the 3000 is still there, but the 3030 10 was already available and provided more flexibility in 11 terms of the markets that it was serving which happened 12 to be similar to those that Novatel has been targeting. 13 Q. Is the 3000 still being manufactured? 14 A. Yes, it is. 15 Q. Is it priced the same as the 3030? 16 A. No, it's not. 17 Q. More or less? 18 A. It's generally a little bit more. 19 Q. Do you know what the price is for the 3000 and 20 the 3030? 21 A. It varies, and I don't know specifics. 22 Q. Varies by what? 23 A. Typically our pricing tends to vary by 24 opportunity and volume. 25 Q. What do you mean by opportunity?	Page 55 1 Q. How many other -- strike that. 2 Do you know how many other LMU products CalAmp 3 offers other than the 3000 and 3030? 4 A. In terms of -- we offer literally hundreds 5 of different SKUs. If you reduce that to platforms, we 6 currently have one -- probably somewhere between eight 7 and ten different platforms of product that we offer 8 today kind of depending on how you subdivide them, and 9 then they may be offered in, you know, one or oftentimes 10 multiple variations based upon cellular technology or 11 other considerations as well. 12 Q. So you could have the same platform that may 13 use two different cellular modules. Is that -- 14 A. That's correct. So, for example, in the case 15 of the 3000 and this datasheet that I have in front 16 of me, it reflects GPRS, CDMA and HSPA. We offer 17 three different configurations of that product with a 18 different cellular module in each. 19 Q. Okay. So the cellular module in the 3000 20 doesn't -- isn't switchable between those three 21 different options. It's specific to one of the three -- 22 A. They are separate -- they are separate 23 manufacturing build options. 24 Q. Okay. So there's a separate build option for 25 the GPRS, and that's separate from Edge and separate
Page 54 1 A. The particular customer, what their 2 competitive situation is, what their market situation 3 is. You know, in some cases, you know, we can, you 4 know, stick fairly close to a consistent type of price 5 model or margin model; but in other cases they may have, 6 you know, a particular, you know, competitive situation 7 where, you know, we need to, you know, be more 8 aggressive in our pricing approach. 9 Q. Is that the same across the board in terms of 10 all of -- well, strike that. 11 In terms of opportunity pricing, does CalAmp 12 take the approach with all of its products or is that 13 particular to the LMU-3000? 14 A. That's inherent in our pricing model across 15 the board. 16 Q. And you said volume discounts are also -- 17 well, strike that. 18 You said that volume is also part of the 19 pricing decision? 20 A. Volume is a consideration, yes. 21 Q. And I take it that means that there's some 22 sort of volume discount? 23 A. Not specifically. For a higher volume deal 24 we're more willing to take a lesser margin than we might 25 on a small volume deal.	Page 56 1 from HSPA? 2 A. Separate from CDMA and HSPA. 3 Q. Okay. GPRS and Edge are the same thing? 4 A. Edge is an operating mode within the HSPA 5 module. 6 Q. Ah, okay. And when you told me eight to ten 7 platforms is about what CalAmp offers, are you including 8 the 3000 and the 3030 as one or two? 9 A. That would be a single. 10 Q. And then are there -- well, is there a way to 11 sort of easily identify the basic platforms you have in 12 mind when you're coming up with the total number of 13 platforms that CalAmp offers? 14 A. Probably the best way to do it would be to 15 either go online and do it or I can sit down and take 16 a minute at some point and, you know, and make you a 17 list. The -- you know, the info- -- you know, it more 18 or less corr- -- you know, correlates with the various 19 datasheets that are offered on the website. 20 Q. Are there additional offerings by CalAmp that 21 are commonly bundled with the LMU-3000 or 3030? 22 A. Not normally. Those are both relatively 23 stand-alone product. 24 Q. What about in terms of software solutions that 25 could be bundled with the devices?

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Page 57 1 A. You know, through our sister division they 2 do offer solutions that include 3000 or 3030 hardware 3 as part of that solution. I'm not familiar with the 4 specific details of, you know, how they're, you know, 5 bundling or offering that to particular customers. 6 Q. So in instances where, for example, an LMU- 7 3000 is bundled with some software solution, that would 8 be sold out of the wireless networks division? 9 A. That is correct. 10 Q. Are those sales tracked the same way as sales 11 made out of MRM? 12 A. They're all managed through the same CRM 13 system. 14 Q. When the PULS was queried about the scripts 15 that we talked about in Exhibit 16, did that include 16 scripts for customers of MRM and also the scripts that 17 were created for customers of the wireless network side? 18 A. Yes. 19 Q. Do you know -- 20 A. They're referred to, I believe, in Exhibit 16 21 under the terms such as under Exhibit A, CalAmp Datacom. 22 Aercept is one of them, and toward the end of Exhibit A 23 those that are listed as WNG underscore customer. 24 Q. Wireless network group? 25 A. Yes, and obviously some of their development	Page 59 1 process or in the customer's market development process 2 they may start out with only a handful of samples that 3 they use for initial proof of concept; and if they're 4 doing their own back end software, they'll use that as 5 stimulus during development. 6 Then they may do just, you know, 100 units for 7 a field trial or something like that; and then, you 8 know, once they've got things proven out, then they go 9 to ordering in higher volumes, so we're -- we have no 10 limits, no formally set limits, so they're able to go 11 through that progression of, you know, small volume to 12 higher volume. 13 Q. Well, you said -- as you said, there's no 14 formal limit or formally set limit. Is there a -- is 15 there an informal number that you expect orders or an 16 informal number of units that you would expect an order 17 to include? 18 A. By that statement I mean that it's unlikely 19 that we would engage or support a customer who was only 20 ordering in smaller volumes. You know, the customer who 21 has an opportunity that is going to, you know, result in 22 some fairly significant volume, we'll support them even 23 in their initial low volume needs. You know, if it's a 24 small, you know, fleet operator who wants to, you know, 25 do -- come directly to us rather than go through one
Page 58 1 and test scripts showed up as well here. 2 Q. So the CalAmp Datacom Aercept, A-e-r-c-e-p-t, 3 that's -- is that one of the listings for a wireless 4 network customer? 5 A. Yes. Aercept is actually an internal business 6 within CalAmp. That is the product that they 7 specifically offer to the vehicle finance marketplace. 8 Q. And so does that mean that -- that may 9 actually -- that these -- the units that we have here 10 under the CalAmp Datacom may actually go out to multiple 11 customers from there? 12 A. It's possible, yes. 13 Q. And is that the same with the WNG underscore 14 customer? 15 A. I would expect so, yes. 16 Q. Do you know whether there's a minimum order 17 for LMU-3000s or 3030s? 18 A. Nothing official. 19 Q. Is there a typical unit, number of units that 20 are included as part of orders for LMU-3000s and 3030s? 21 A. Well, typically we try to encourage customers 22 to order in larger lots and case lots and, you know, 23 the -- you know, because of the nature of our business, 24 we tend to focus on customers who are going to do high 25 volume. However, particularly early in the sales	Page 60 1 of our customers to, you know, buy his own 50 units 2 directly, we're not even going to take that piece of 3 business. 4 Q. Uh-huh. I note the list we had at Exhibit 16 5 was for customers that had scripts for speed alerts and 6 geofencing, right, page 5? 7 A. Okay. Yes. 8 Q. How many of the other platforms that you 9 referred to allow customers to load scripts for 10 geofencing? 11 A. They all support geofencing in the generic 12 concept in one form or another, and they all are capable 13 of doing speed alerts as well. 14 Q. But in terms of the onboard diagnostic 15 interfaces, is the LMU-3000 and 3030 the only platform 16 that allows for that? 17 A. Specific to OBD2, yes. We have other products 18 that support the heavy truck standard which is not OBD. 19 Q. Oh, you mean another vehicle bus that's not 20 onboard diagnostic bus? 21 A. Yes. 22 Q. Is that what you mean? Which products are 23 those? 24 A. It's actually through an optional product we 25 call JPod which can be either an external option or

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Page 61 1 an internal board depending on the product it's used 2 with. 3 Q. Do you know whether there's any license fees 4 that are paid for either the LMU-3000 or 3030? 5 A. Yes. 6 Q. Okay. Are there license fees paid on them? 7 A. Yes. 8 Q. To whom? 9 A. The 3030, I'm sorry, the LMU-3000, those fees 10 are paid to B&B. 11 Q. The 3030? 12 A. And the 3030 has recently changed but was paid 13 to a company called Innova, I-n-n-o-v-a. 14 Q. And who is it now being paid to? 15 A. Our commercial arrangement has been 16 restructured. It's not a royal- -- it's not a 17 traditional royalty model anymore. 18 Q. But the 3030 is -- components of the 3030 are 19 still being made by Innova? 20 A. No. 21 Q. Originally were components of the 3030 made 22 by Innova? 23 A. Software components were provided by Innova. 24 Q. Does that mean that now the software 25 components are done completely by CalAmp for the 3030?	Page 63 1 A. I believe there are, yes. 2 Q. And are there documents that memorialize the 3 prior and new arrangements between CalAmp and Innova? 4 A. Yes. 5 Q. Do you know how the margins for the -- strike 6 that. 7 Do you know whether the margin is the same for 8 the sales of the 3000 versus the 3030? 9 A. I don't know the specifics of the net margins. 10 I know that the cost basis of the 3000 is higher, and 11 there's not a significant difference in market value, 12 so I would expect that they are tighter than those of 13 the -- than the 3030, but I don't know for a specific 14 fact. 15 Q. Do you know why the manufacturing costs for 16 the 3000 are higher? 17 A. The nature of the hardware design. 18 Q. Do you know how the margins of the 3000 and 19 3030 compare to the other platforms, other LMU platforms 20 you talked about generally? 21 A. Generally they're probably tighter. 22 Q. Why is that? 23 A. Again because of the competitive nature that 24 we're seeing in the OBD marketplace right now. 25 Q. Mostly from Xirgo?
Page 62 1 A. Confidentially that technology has been 2 licensed and brought in-house. 3 Q. Licensed from Innova? 4 A. Yes. 5 Q. But it's not a royalty -- not an ongoing 6 royalty anymore? 7 A. There are some -- the terms include a small 8 royalty which is going away, and we've paid a flat fee 9 to license it. 10 Q. Do you know what was being paid to B&B for the 11 3000? 12 A. I don't know the specific numbers offhand. 13 Q. Do you know the numbers that were being paid 14 to Innova? 15 A. No. 16 Q. Who would know that? 17 A. The best source would probably be probably 18 Gallin Chen. 19 Q. G-a-l-l-i-n? 20 A. Yes. 21 THE REPORTER: I'm sorry? 22 MR. SANTURRI: G-a-l-l-i-n C-h-e-n. 23 Q. Are there some sort of license agreements or 24 documents that memorialize the arrangements between 25 CalAmp and B&B?	Page 64 1 A. It's really across the board. There is a lot 2 of activity and a lot of high volume quoting going, and 3 that's driving prices down for everybody, so -- 4 Q. Why has activity -- you say a lot of activity. 5 Is that -- does that mean that activity has increased in 6 this field -- 7 A. It's -- 8 Q. -- or -- 9 A. It's grown steadily over the past few years; 10 and while nobody is doing, you know, super high volumes 11 today, there's a lot of talk of high volumes in the 12 marketplace, and, you know, very much an expectation of 13 very low cost, and that tends to put a tremendous amount 14 of pressure on the pricing. 15 Q. Do you know what's driving the increased 16 demand for these products like the 3000 and the 3030? 17 A. It comes from a variety of places, roadside 18 services, insurance. You know, there's a lot -- in 19 the fleet management space there's a lot of pressure 20 to -- fleet management solutions have typically been 21 professionally installed which is very expensive. It 22 can cost more to install it than the device itself, 23 and so just a simple plug-in solution is extremely 24 attractive. 25 Q. You said roadside service industry. What does

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Page 65 1 that mean? 2 A. Like auto clubs. 3 Q. Triple A? 4 A. Triple A and the like. 5 Q. Why does Triple -- do you know what -- or 6 strike that. 7 Do you know how auto clubs like Triple A use 8 products like the LMU-3000? 9 A. The auto club side of the application is 10 typically looking at the idea of proactive service as 11 well as precision in identifying where a client is when 12 they call in. They in some areas can expend a lot of 13 time, and hence money, to locate somebody sitting on 14 the side of the road who hasn't provided good location 15 information to start with. 16 You know, in some cases they use it to provide 17 some preliminary diagnostics to identify what the 18 problem might be with the vehicle prior to someone 19 getting there. In some cases that helps them to 20 dispatch a more appropriate resource. 21 Q. So in the context of roadside services, you're 22 talking about the units being in the disabled vehicles, 23 not in the service trucks that are going out to service. 24 A. That's correct, although they -- it goes into 25 both applications.	Page 67 1 Q. And then the third industry mentioned was 2 fleet management. Is that the typical delivery trucks 3 and service trucks and that sort of thing? 4 A. Delivery trucks, service trucks as well as 5 automobile fleets, you know, corporate cars, things 6 like that. 7 Q. And has there been an uptick in demand from 8 those industries in the past couple of years? 9 A. It's not necessarily an uptick. It's a 10 transition from the traditionally installed hardwired 11 installations to the desire to eliminate that 12 installation or reduce the installation cost and go to 13 a plug-in solution. 14 Q. And you -- in terms of the margins that you 15 see on the 3000 and 3030, are the units themselves more 16 expensive to manufacture? 17 A. Compared to each other or compared to other 18 products? 19 Q. Compared to other platforms within CalAmp. 20 A. In terms of the equivalent costs, they are 21 similar until you get to the incremental hardware for 22 the OBD interface itself. That's obviously a chunk 23 of additional cost that doesn't exist on these other 24 products. You know, in terms of margin, again that 25 varies depending on the particular piece of business;
Page 66 1 Q. Okay. And so is that -- are companies like 2 Triple A offering LMU-3000 or competitive products to 3 try to -- to their own customers to allow them to 4 service -- 5 A. Yes. 6 Q. -- them better? And then how is -- how does 7 insurance use devices like the LMU-3000? 8 A. Insurance uses them for what they refer to 9 as a usage-based insurance model which is a combination 10 of looking at the activity patterns of the vehicle, 11 validating the mileage that's being put onto the 12 vehicle. In many cases they're also getting into driver 13 behavior where they're actually scoring the driving 14 performance of the driver, the guy who has the, you 15 know, hard braking, hard acceleration, hard cornering. 16 You know, he's going to get scored as a higher risk and 17 ultimately pay more than the guy who, you know, drives 18 at a more moderate level. 19 Q. And the insurance companies are also using 20 the tracking side of that to actually track where their 21 customers are driving their vehicles and how far they're 22 driving them? 23 A. From a mileage monitoring standpoint, yes. 24 From a location standpoint generally they steer away 25 from it other than for theft recovery.	Page 68 1 but obviously because there's higher cost, there's 2 the potential at least to get squeezed further on 3 margin. 4 Q. And in terms of competition from competitors, 5 is there more pricing pressure on the LMU-3000 and 3030 6 than some of the other platforms offered by CalAmp? 7 A. It's not our most pressured, but it's -- it 8 is high pressure compared to some of our product lines. 9 Q. And that's just because of the particular 10 customers? 11 A. It's the nature of the market -- of the 12 various market segments that we serve. 13 Q. So are the LMU-3000s and 3030s being offered 14 to different market segments than some of the other 15 platforms we talked about? 16 A. Yes. 17 Q. What other market segments provide for a 18 higher margin? 19 A. Some of the more specialized fleet tracking 20 applications tend to -- those -- the markets tend to be 21 less cost sensitive than the markets that the 3030 are 22 in, and some of our small devices that are used more 23 in the asset management theft recovery, you know, 24 just basic functionality types of markets. Those are 25 extremely cost sensitive and a lot of pressure there.

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Page 69 1 Q. Is the -- does CalAmp view the 3000 and 3030 2 as commercially successful? 3 A. I wouldn't say that we've viewed it as having 4 crossed the line in terms -- you know, it's a developing 5 marketplace. The success thus far has been limited, you 6 know. It's, you know, we've, you know, made very good 7 progress and inroads in penetrating that market, but 8 I don't know that we would consider that we're there 9 yet. 10 Q. It sounds as though you're -- you -- I think 11 you said it was a limited success, but it sounds as 12 though your expectation is it will become more 13 successful over time. 14 A. Yes. 15 Q. And why is it -- why the change in dynamic? 16 A. Our ability to grow in the market is heavily 17 influenced by our ability to adapt and evolve the 18 product with customer needs because this product started 19 using third-party technology first from B&B and then 20 from Innova that has hindered our ability -- our 21 flexibility and our ability to respond; hence, the new 22 business model that I described earlier when we spoke 23 about royalties where we've brought that technology now 24 in-house where we have more control and flexibility 25 over, you know, what we do and how we apply it.	Page 71 1 some of those translate fairly closely to a true OBD 2 parameter as it's defined within the OBD specifications. 3 In others cases those may -- might be calculated or 4 derived parameters based on various information that 5 might come off of the OBD bus but are being calculated 6 and presented as a resulting value. 7 Q. Now does the 3030 support the same set of 8 vehicles as the 3000? 9 A. The 3030 supports actually a broader range of 10 vehicles than the 3000. 11 Q. But amongst those vehicles the number of data 12 bus parameters is fewer with the 3030? 13 A. That is correct. 14 Q. Does the -- do the 3000 and the 3030 operate 15 as loss leaders for CalAmp? 16 A. No. 17 Q. Do you know whether your competitors with the 18 LMU-3030 and 3000 are offering features that you think 19 are necessary to meet market needs? 20 A. I believe so. 21 Q. What features are your competitors offering 22 that you are not? 23 A. At this point I'm not familiar with any 24 features that they have that we don't specifically. 25 There are some features that we have that some of the
Page 70 1 Q. Are you adding new functionality or features 2 to the 3030 as a result of that changing relationship 3 with Innova? 4 A. We have the ability to do so now. 5 Q. Are there particular features or functions 6 that are slated to be added to the 3030? 7 A. The key difference right now, I would say, is 8 the 3030 only supports about half the parameters of the 9 3000 even though it's a more flexible platform, so the 10 key thing is just to close that gap so that from an OBD 11 parameter perspective they are comparable, and, you 12 know, we have the ability to extend beyond that, you 13 know, as customers would need. 14 Q. I know earlier when I asked you about 15 parameters, you wanted me to specify whether I was 16 talking about LMU or OBD parameters. When you're 17 talking about the 3030 working with about half the 18 parameters of the 3000, you're talking about OBD 19 parameters? 20 A. That is correct. 21 Q. And when you're talking about OBD parameters, 22 do you mean the different types of data coming off the 23 OBD port? 24 A. Yes, yes. And I use that, the term 25 "parameters" somewhat generically in that, you know,	Page 72 1 competitive product does not, and there are some where 2 our implementation dif- -- we have the same feature, but 3 our implementation is different where, you know, they 4 can be utilized by the customer somewhat differently. 5 Q. Back on Exhibit 1, the sales sheet, we talked 6 somewhat about competitive price. The next big bold 7 statement there is "Competitive Technology." Is the 8 LMU-3000 and 3030 offering competitive technology to 9 other of your competitors? 10 A. At the time that it was -- that the 3000 was 11 launched, the 3000 was the only product that was capable 12 of doing -- of this type -- that was capable of doing 13 the driver behavior type of accelerometer work. That 14 was a unique feature. Subsequently competition is 15 coming to that space and is offering similar 16 capabilities, but that was probably the biggest 17 differentiator from a technology perspective. 18 Q. So does CalAmp still have competitive 19 technology in this space? 20 A. I would say it's competitive. I would not say 21 that it was substantially different than what's offered 22 by others. 23 Q. And remind me again. Why is it that you think 24 Xirgo is able to beat CalAmp in terms of pricing? 25 A. Xirgo is a privately held company. You know,

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Page 73 1 they're obviously able to tolerate margin variation 2 that as a publicly held company we could never do. They 3 also are -- their operational business model is, as I 4 understand it, more simply structured where there's 5 likely to be less layers of cost in the food chain so to 6 speak. 7 Q. From a technology standpoint is their device 8 cheaper to make? 9 A. I would say that in some aspects it is because 10 they use a single controller for the -- they use a -- we 11 have more controllers in our architecture than they do. 12 Depending on the specific product that Xirgo has, 13 they're combining functionality into a lesser number of 14 controllers. In some cases that might be OBD and the 15 main controller, and in other cases that might be the 16 main controller and the controller of the radio. 17 MR. SANTURRI: All right. It looks like we're 18 about out of tape, so why don't we go ahead and take a 19 break. 20 THE VIDEOGRAPHER: Off the record at 11:17 21 a.m. 22 (Recess.) 23 THE VIDEOGRAPHER: Start of tape 3 (sic). 24 We're back on the record at 11:28 a.m. 25 BY MR. SANTURRI:	Page 75 1 A. That's correct. 2 Q. Okay. Is it possible to remove access to 3 particular scripts or particular functionality -- well, 4 let me ask you a different question and maybe provide 5 some more parameters to it -- not parameters; so if, 6 for example, you didn't want customers to be able to 7 generate speed alerts, is it possible to actually 8 preclude the use of speed alerts in your devices? 9 A. In the devices as they exist today, no. 10 Q. What would it take to do that sort of 11 preclusion? 12 A. It would effectively require, you know, 13 removing access to speed as a parameter. 14 Q. And if you wanted to remove the ability to do, 15 let's say, geofencing, is there any way to do that in a 16 tracking device? 17 A. There is. Obviously the impact would be 18 great, but the -- in both cases there are applications 19 of that functionality that go beyond the immediately 20 obvious functionality that, you know, we've talked about 21 in response to your client where we use, for example, 22 geofencing capability not so much as geofencing but to 23 define behavior within the device. 24 Q. What do you mean by that? 25 A. Where, for example, a device might use --
Page 74 1 Q. Is there a separate analysis or document 2 generated in terms of gauging the business case for a 3 new product? 4 A. No. 5 Q. Does that mean that in terms of gauging or 6 forming a business case for a particular product, is 7 that part of the initial CRS? 8 A. It's typically done outside of the CRS. What 9 will happen is, you know, we do generate a financial 10 piece for the CRS, but it's more looking at the broader 11 potential of the product rather than the specific 12 driving opportunity. That call is typically made via an 13 external analysis done by our GM. 14 Q. Which part is done by your GM? 15 A. As far as the analysis, the analysis of the 16 potential return on that effort based on the 17 opportunities that are driving that particular program. 18 Q. Do you know whether an analysis like that was 19 done with respect to the 3000 or 3030? 20 A. It was, but likely it was done informally. 21 Q. So you wouldn't expect there to be documents 22 that memorialized it? 23 A. That's not a normal part of our process. 24 Q. Generating documents to document the business 25 case is not part of the normal process?	Page 76 1 based on geographic location, it might use a Wi-Fi 2 interface when it's in its home yard or in the garage 3 whereas you go out on the road, and it would use 4 cellular. The geographic location, you know, that 5 boundary could be used as criteria to decide which way 6 you're going to go. It would not be communicated to 7 the outside world in any way, but it just changes the 8 operating mode within the device. 9 Q. And in terms of removing the OBD to 10 functionality, if you were to do that with the LMU-3000 11 or 3030, does that basically just convert this to an 12 LMU-2000? 13 A. Yes. 14 Q. Do you know how the LMU-2000 has sold? 15 A. I don't know specifics. It's not -- to my 16 knowledge it's not a high runner for us, but, you know, 17 there are customers, you know, using it in some volume 18 today. 19 Q. Do you know whether it -- how the sales of the 20 LMU-2000 compare to either the 3000 or 3030? 21 A. No, I don't. 22 Q. Do you know whether they're higher or lower? 23 A. They're lower. 24 Q. Do you know whether the margins on the 2000 25 are higher or lower than the 3000 or 3030?

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Page 77 1 A. I don't know specifically, but I would expect 2 that they're likely better. 3 Q. Because the OBD2 aspect of the 3000 and 3030 4 costs more to build? 5 A. Yes. 6 Q. I might have already asked you this, but how 7 is the price -- how is the LMU-2000 priced compared to 8 the 3000 and 3030? 9 A. It's lower. 10 Q. Generally are the -- are CalAmp's devices 11 escalating pricing for more features? 12 A. Often but not always. 13 Q. I have a few documents that I've got, and I'm 14 going to see if you can't provide some context to them. 15 If you don't know, tell me you don't know, but I'm going 16 to start with Exhibit 7 from Mr. Hergesheimer's depo. 17 And this was a document that I received from CalAmp, and 18 I am wondering whether you can provide any context as to 19 what this data means, if anything, to you? 20 A. Offhand I am not familiar with this report 21 at all. 22 Q. Okay. Because it appears to me that we have 23 columns of a spreadsheet. Do you know what ETL job name 24 is? 25 A. No. I'm, you know -- you know, if I was to	Page 79 1 Q. Okay. 2 A. The information contained in here basically 3 is the coding that -- the numeric coding that I talked 4 about that describes the, you know, trigger, modifier, 5 action scenario that we discussed previously. 6 Q. So do you know -- so is the first column the 7 trigger? 8 A. The first column is just a base reference 9 number for the trigger or action. The following one 10 identifies the specific parameter or trigger or action 11 involved, and then you have modifiers. And at that 12 description I'll draw the line and say I am not a script 13 writer. I can't analyze this stuff by eye. I believe 14 you have Jeff Eiberger who is our senior FAE on the list 15 for tomorrow. He can go into much more detail as far as 16 any specific questions relative to that. 17 Q. Do you know why pretty much the only number 18 I see on the first column of the 1,900 pages is 512 or 19 maybe 513? 20 A. That -- it's just the nature of the way the 21 codes are referenced in our system. 22 Q. Okay. Was there a customer need or demand 23 that led to the change or the introduction of the 24 3030 in addition to the 3000 that you already had? 25 A. Cost and long-term flexibility.
Page 78 1 venture a guess, and it is literally only a guess based 2 on descriptions I see here, I would say that this is 3 likely the summary of tasks that run and reports that 4 are available for some type of probably fleet customers' 5 application, but that's not something that A, we 6 normally offer nor that I am -- would normally be 7 involved with. 8 Q. Okay. I have another one for you, and I think 9 this is marked -- 10 THE REPORTER: 17. 11 MR. SANTURRI: -- 17. 12 (Exhibit 17 marked.) 13 BY MR. SANTURRI: 14 Q. And I will tell you that this is the first 15 seven pages of about 1,900 pages that looked pretty much 16 just like this -- 17 A. Okay. 18 Q. -- and you can see that the first column we 19 have 512, and it basically goes from zero through -- 20 first column 512, and the second column goes from zero 21 through 249, and I think that's as high as it ever goes 22 on that second column, and then it may go back to 1 or 23 may skip some things, and obviously you have a third 24 column. Any idea what this data is representative of? 25 A. These are dumps of script files.	Page 80 1 Q. And was that -- were those needs that CalAmp 2 recognized or that customers raised? 3 A. It was largely generated internally. 4 Q. And obviously I understand the cost side, but 5 what do you mean by long-term flexibility? 6 A. The technology that we licensed from B&B, 7 the 3000, is based upon -- is based on an FPGA, field 8 programmable gate array, technology that we don't 9 control the design of, and so it's an expensive piece 10 of hardware combined with the fact that we have -- we 11 don't have the flexibility to change programming on it 12 easily. So it becomes -- it became very much a fixed 13 set of functionality. It was -- it became apparent that 14 we weren't going to have the flexibility for the product 15 to grow and evolve to meet our needs. 16 Q. So CalAmp didn't really have the ability to 17 adjust or change the programming within the 3000? 18 A. No. We were totally dependent on B&B for any 19 programming changes; and because of the nature of the 20 hardware, once it was in the field, we could never 21 update that piece of the product without physically 22 bringing the product back in which is cost prohibitive. 23 Q. So in order to update or change the 3000, the 24 OBD data or programming for the 3000, you have to do 25 that through the zero port?

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Page 81 1 A. Uh-huh, yes. 2 Q. You couldn't do over-the-air updates for the 3 OBD? 4 A. Not on the OBD side. 5 Q. But for the 3030 you can do over-the-air 6 modifications to the OBD side? 7 A. Yes, we can. 8 Q. And is that done regularly or are there only 9 certain instances of that? How does that work? 10 A. Any time we have an update, it is generally 11 optional to the customer whether they apply it or not. 12 If it's in a product -- you know, if it's a product 13 that's in the field and working reliably and there's not 14 a new feature they want to take advantage with -- of, 15 you know, in that particular device in the field, they 16 generally can keep the existing code running on it, 17 and it will all work fine. If it's a bug fix that's 18 affecting them or a new updated release includes 19 functionality that's either necessary or that they 20 desire to add, then they have the option of updating. 21 Q. And are those updates implemented by a PULS -- 22 A. Yes. 23 Q. -- P-U-L-S? Can they also be implemented 24 using LM Direct? 25 A. Yes, but it's not generally -- PULS uses the	Page 83 1 configuration information on the devices over the air. 2 Q. And do all CalAmp's customers have access 3 to PULS? 4 A. Yes. 5 Q. But the end users do not, correct? 6 A. Generally that is correct. 7 Q. Do end users have the ability to use LMU 8 Manager? 9 A. No. 10 Q. Is there any interface that end users have to 11 be able to change or modify the LMU series? 12 A. Not directly through us. There will be -- 13 they may be given through the application that our 14 customer provides to the end customer, they may have 15 the ability to -- through our customer's web portal, for 16 example, that might be facing his end customer, they 17 might have the ability to change some settings to turn 18 a feature on and off or to, you know, change a value, 19 you know. 20 For example, in the case of speed, you know, 21 if somebody's got a teen driver app, you know, and they 22 want to change the speed limit from 85 to 75, you know, 23 they might be able to fill in a field on a Webpage and 24 do that, and that would be communicated to the device 25 on a specific basis.
Page 82 1 LM Direct protocol. LM Direct only refers to the 2 protocol. 3 Q. Okay. Is it LMU Manager? Is that the one 4 where you can talk directly to individual devices? 5 A. Yes. 6 Q. And it wouldn't be -- you don't normally do 7 updates through LMU Manager? 8 A. No. 9 Q. PULS is more efficient I take it -- 10 A. Yes. 11 Q. -- because you can do the whole -- basically 12 the whole set of units out there in the field? 13 A. Yeah. PULS handles over-the-air updates of 14 the units. LMU Manager is really only a tool for either 15 interfacing with the unit one on one or taking that 16 information and then turning around and uploading it to 17 PULS to then be populated out. 18 Q. And does LMU Manager require a physical 19 connection to the device? 20 A. No. 21 Q. So it can be done over the air also or used 22 over the air also? 23 A. Well, it works through -- it generally works 24 through PULS. PULS is the official mechanism for 25 maintaining both firmware as well as script and	Page 84 1 Q. And when your customers have those, their own 2 web portals, does that ultimately still end up piping 3 the information through PULS? 4 A. When it comes to a firmware update, when 5 it comes to a formal configuration update, that normally 6 will go through PULS. Day-to-day transactions as far 7 as, you know, event reports, location reports, changing 8 of individual settings, things like that, that's 9 normally an interaction that goes on directly between 10 their server -- our customer's server and the device. 11 CalAmp is not in the -- what we call the application 12 data path. 13 Q. How about with your wireless network group? 14 Do they have -- do they offer that functionality to some 15 of their customers? 16 A. They do. 17 Q. And would that be used -- is that also able to 18 be used by end customers or would that just be for 19 CalAmp's customers? 20 A. Again the delineation is essentially the same. 21 Wireless network's offering more or less is equivalent 22 to what any of our other customers might have; so, you 23 know, with respect to the way an LMU interacts with the 24 outside world and with PULS, so firmware updates, full 25 configuration updates, go through PULS. That's what

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Page 85 1 we call the maintenance path. Then the day-to-day 2 application data goes through a direct path between 3 wireless network servers and the device in the field. 4 Q. Now does CalAmp offer any -- I think I've 5 seen it referred to or heard it referred to as inbound 6 servers where the device would send an event report to 7 an inbound server. Does CalAmp offer that side -- 8 A. That's the application path. I'm sorry. 9 That's the application path that I refer to where when 10 you set the inbound data address on an LMU, you're 11 pointing it to that customer's application server. When 12 you set the maintenance server path on an LMU, you're 13 setting that to PULS except for in a few rare occasions 14 where the customer doesn't want it touching PULS -- they 15 want to manage it themselves -- but the normal setting 16 would be maintenance gets directed to PULS. The inbound 17 application data server path is set to the customer -- 18 to our customer's server. 19 Q. And the wireless network doesn't offer that 20 inbound application path? 21 A. Yes, they do. 22 Q. Okay. So they're the one exception -- they're 23 the one part of CalAmp that does offer that inbound -- 24 A. Yes -- 25 Q. -- server side.	Page 87 1 A. Yes. 2 Q. Do you know whether that data has been queried 3 for speed alerts, geofencing? 4 A. That data has not, but those -- it's been 5 evaluated based on the script which is why in Exhibit 16 6 they appear on that list as the scripts are identified. 7 THE REPORTER: Exhibit 18. 8 (Exhibit 18 marked.) 9 MR. KAUTH: Thank you. 10 THE WITNESS: Thank you. 11 BY MR. SANTURRI: 12 Q. Sir, you've been handed what's been marked 13 as Exhibit 18. Is this the commercial requirements 14 specification that you generated for the LMU-3000? 15 A. Yes. 16 Q. On the first page who is Wade Huber, 17 H-u-b-e-r? 18 A. He is one of several sales directors that we 19 have and at the time of this CRS was representing the 20 opportunity that was driving the 3000 to be implemented. 21 Q. So is Mr. Huber the one who would have 22 articulated a customer need to you? 23 A. Yes. 24 Q. The first page of 18 refers to the status of 25 this as a draft, and I see a bunch of empty signature
Page 86 1 A. -- that is correct. 2 Q. And does the -- does the wireless network 3 group still work with an intermediary or an integrator 4 before it -- strike that. 5 Does the wireless network group work with any 6 end users? 7 A. No. 8 Q. So there's still going to be an integrator as 9 part of the interaction between the wireless network 10 group and the end user. 11 A. Yes. There will be an integrator or some form 12 of reseller. It may just be a marketing company as 13 opposed to a more technically savvy company, you know, 14 because now they've gone to the wireless network guys 15 to provide that capability, that technical capability 16 for them. 17 Q. And so with the units that are sold or 18 provided by the wireless network group, does the 19 wireless network group's inbound server, is that a 20 CalAmp server? 21 A. Yes. 22 Q. And so for at least those customers CalAmp 23 actually has access to specific event reports that have 24 been generated by the LMUs provided by the wireless 25 network group.	Page 88 1 boxes. 2 A. Uh-huh. 3 Q. Do you know whether there were subsequent 4 versions of this CRS? 5 A. It is quite possible that there was. The 6 normal convention would be that the final signed-off 7 version would have rolled to version 1.0. 8 Q. Do you know where or how the CRSs are 9 maintained within CalAmp? 10 A. The final executed CRSs are archived in pdf 11 form on one of our servers. 12 Q. Were you involved in tracking down this CRS 13 for purposes of this litigation? 14 A. I was not involved specifically in this one 15 or in this element of the discovery. 16 Q. But you would expect there to be another 17 version of this that would actually be the executed 18 version? 19 A. I would expect so, yes. 20 Q. That would be CalAmp's normal course of 21 business with CRSs? 22 A. Yes. 23 Q. And I know you mentioned that you weren't 24 involved in obtaining this CRS. Have you been involved 25 in collecting other documents for the purposes of the

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Page 89 1 litigation? 2 A. I have. 3 Q. And do you recall what documents you've 4 located as part of your efforts? 5 A. I pro-- I did the -- drove the activity 6 relative to the customer and script identification. 7 A number of items were provided by others prior to my 8 starting looking for documents. Offhand I don't recall 9 specifically what I provided versus others; but this 10 would not likely have been from me because I believe 11 there was a signed version that would have been 12 produced -- that I would have pulled for that. 13 Q. Offhand do you know whether there would be -- 14 there would have been changes made between version .3 as 15 a draft and the final version? 16 A. Typically the changes that take place between 17 a draft version and the final are relatively limited. 18 It may be changes in schedule. It may be fine-tuning of 19 elements, you know, within the technical requirements. 20 Generally by the time it goes to a published draft, 21 it's relatively, you know, close in terms of the major 22 substance of the product being defined. 23 Q. Have you searched your e-mail for documents 24 related to the development of the 3000 and 3030? 25 A. Yes.	Page 91 1 A. Not specifically in that form; however, it 2 might be, you know, yeah, traceable through account 3 notes or other, you know, other means. 4 Q. Do you know whether -- well, let me ask you 5 this. What do you mean by account notes? 6 A. Information within the files of the 7 salespeople, you know, about, you know, their 8 discussions with customers or what opportunities they 9 were presenting at that time -- in that time frame. 10 Q. Does CalAmp have files dedicated to individual 11 customers? 12 A. The individual salespeople maintain those 13 files. 14 Q. And are those maintained in paper or 15 electronic format? 16 A. I believe it varies. I believe it varies 17 within the individual sales team, how, you know, what 18 format it takes. 19 Q. How big is the sales team? 20 A. There's three primary sales directors, and 21 then they have some support staff below them. 22 Q. But in terms of maintaining individual 23 customer files and making notes based on discussions 24 with customers, would those files be held by the 25 three --
Page 90 1 Q. Did you turn over whatever results you found 2 to counsel? 3 A. I did. 4 Q. Okay. If you'd turn to page 4 of 19 on 5 Exhibit 18, and there's actually -- down at the bottom 6 they have what we refer to as Bates numbers, the 7 numbered code CalAmp 8178, do you see that? 8 A. Yes. 9 Q. And there's referenced under 1.1 for the 10 purpose to "Beta customer opportunities already 11 identified." Do you see that in the last line? 12 A. Yes. 13 Q. Do you know who the beta customers were? 14 A. I don't recall offhand who those were. 15 Q. What does it mean to be a beta customer? 16 A. Typically it would be an initial customer. 17 It may be the one actually driving the customer, the 18 development opportunity, or it may be a customer who is 19 willing to work with us with early release product to 20 basically bring it out and make sure that there aren't 21 any issues with it early on before we ramp up production 22 to a full level. 23 Q. Do you -- does CalAmp keep records of the 24 specific customers that identified needs that led to 25 a CRS?	Page 92 1 A. Typically. 2 Q. -- directors? 3 A. Typically. 4 Q. Do you know whether those sales files have 5 been reviewed for references to developing OBD pieces 6 like the LMU-3000? 7 A. I don't know whether they've been looked at 8 specifically in that context. Largely those files are 9 e-mail based, and there were both individual searches 10 done within the technical team and then global searches 11 done within our e-mail system at large to, you know, 12 identify any reference to the products mentioned. 13 Q. And do you know what search terms were 14 used? 15 A. Not offhand. That was handled by our IT 16 group. 17 Q. Under the "Product Description" in 2.1 you 18 mention that "The OBD-3000 is derived roughly from the 19 LMU 2600." 20 A. Yes. 21 Q. What is the LMU-2600? 22 A. The LMU-2600 is a platform of product that is 23 our -- it's the basic workhorse of our fleet management 24 product. It's based on a 32-bit processor platform and 25 has, you know, a fairly rich set of features to it.

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Page 93 1 What we did in the case of the migration to the -- or 2 the implementation of the 3000 was we lifted the core 3 functionality hardware and softwarewise from the 2600, 4 which is a hardwired black box product that's got a lot 5 of external -- 6 THE REPORTER: "Has a lot of external" -- 7 THE WITNESS: -- internal output circuitry. 8 And we removed that I/O circuitry because we don't have 9 those interfaces use that controller core, that software 10 core, as the foundation to then build the OBD product 11 upon adding the new subsystem block of the OBD 12 interface. 13 BY MR. SANTURRI: 14 Q. The LMU-2600 is a different form factor, 15 right? 16 A. That is correct. 17 Q. It's probably a bigger box? 18 A. Yeah. 19 Q. And the -- but you use the tracking and 20 cellular side of the LMU-2600? 21 A. The basic block diagram of the 2600 including 22 the controller, the GPS receiver, the cellular was 23 repeated in the 3000 design. 24 Q. Did the 3000 use the same, the same actual 25 processor and cell card and GPS unit?	Page 95 1 little bit later than that, but I'd have to look to 2 verify. 3 Q. Below that chart you say that "the 3000 is 4 anticipated to have a two-year sales lifespan before 5 re-spin to cost reduce and improve feature set." Would 6 you say that the -- well, first of all, the LMU-3000 has 7 had more than a two-year life span, right? 8 A. That's correct. 9 Q. Would you characterize the 3030 as a re-spin 10 to cost reduce and improve feature set? 11 A. The 3030 basically meets that. In general 12 context the -- excuse me -- the reason the 3000 has 13 continued in production is because of the previously 14 mentioned difference in terms of the gap in 15 functionality in terms of parameters. 16 Q. Are there some customers that want more OBD 17 parameters in the unit? 18 A. Yeah. There are customers using parameters 19 that are only available on the 3000 today. 20 Q. And I take it the goal is to add support for 21 those additional parameters to the 3030? 22 A. That is correct. 23 Q. Is there a timeline on when that will be done? 24 A. Now that we have the technology in-house 25 that's a recent development, the desire is to roll that
Page 94 1 A. It's the same processor. Off the top of my 2 head I'm not sure whether it was the same GPS receiver 3 or cellular module because we -- they tend to evolve 4 over time; and so depending on the timing, you know, we 5 may have applied an updated version of a GPS receiver 6 compared to the 2600 or a different cellular module; 7 so once you kind of go to that next layer, there may 8 be some variations, but functionally it's the same. 9 Q. In the "Product Description" you have on the 10 second -- basically the second line -- you say that "the 11 OBD-3000 is intended to be the first generation of a 12 small value added GPS tracking, driver behavior and 13 cellular communication device." What do you mean by 14 value added or what did you mean by value added? 15 A. The idea there was that it was adding value 16 through now -- excuse me -- being able to offer within 17 this device now vehicle centric information as well. 18 Q. The OBD information? 19 A. That's correct. 20 Q. On the next page Bates label 8179 you have a 21 "Market Launch and Lifecycle." Do you see that? 22 A. Yes. 23 Q. Do you know whether CalAmp stayed true to the 24 dates projected in here? 25 A. I don't recall offhand. I believe it was a	Page 96 1 out fairly quickly. 2 Q. And then below that there's a -- the next one 3 we have "Product Price and Cost Targets," and it says 4 "Table 1 left blank." Do you know whether the final 5 version of this CRS would actually have a Table 1 for 6 product price and cost targets? 7 A. It should, yes. 8 Q. Under the "Product Perspective" on that same 9 page 8179 it says that "the device interacts with a 10 remote server or with a remote user using a web server 11 or client software on the remote user's computer." 12 And my question is is there a distinction between 13 interacting with a remote server versus interacting with 14 a remote user using a web server or client software? 15 A. From the perspective of the device it doesn't 16 care. From an implementation by our customer's 17 perspective we have some that are -- the interaction 18 with the user is totally based upon a web portal, and 19 that web portal was the front end from the -- sitting 20 on the server or interface to the server that interacts 21 with the device. In the case of other customers, the 22 server that interacts with the device may only be 23 serving as a portal for an application that a customer 24 might have on a Smartphone or on their own computer that 25 just gets the data from that back end server.

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Page 97 1 MR. SANTURRI: Okay. All right. Why don't we 2 go ahead and take a break for lunch. 3 THE VIDEOGRAPHER: Off the record at 12:08 4 p.m. 5 *** 6 (Lunch recess.) 7 *** 8 THE VIDEOGRAPHER: Back on the record at 1:24 9 p.m. 10 BY MR. SANTURRI: 11 Q. All right, sir. If we can turn back to what 12 we had marked as Exhibit 18, and that was the CRS for 13 the LMU-3000, now I notice on here on the Exhibit 18 it 14 says the OBD-3000, that is, that did become the LMU -- 15 A. That is correct. 16 Q. Okay. On page 8 of 19 of CalAmp 8182 you have 17 a list of "Standard Firmware Functions." Do you see 18 that? 19 A. Yes. 20 Q. Under the OBD reporting capabilities one says 21 "Current speed," and in brackets it says "Any PEG 22 related speed triggers should be done using GPS speed." 23 Do you see that? 24 A. Yes. 25 Q. Do you know whether the LMU-3000 does speed	Page 99 1 alert function. 2 Q. With the geofencing, now my understanding 3 is that with the CalAmp devices, you can do geofencing 4 based on what you call geozones; is that right? 5 A. Yes. 6 Q. And then you can also do geofencing using PEG 7 zones? 8 A. We support three different types of 9 geoboundary types of behavior or three different types 10 of geoboundaries. One is the point radius method where 11 you define a center point and a distance, a radial 12 distance from that center point, as is in your client's 13 claim. One is a square centered upon a center point, 14 and the third is a vector-defined polygon of any size 15 or shape. They're three completely different methods 16 that are able to be used within the product. 17 Q. Now with the interrogatory response, I think 18 it's Exhibit 16, were those based on the radial 19 geofencing? 20 A. On the geofence I believe again we gave you 21 the superset of information because the question -- the 22 request was stated broadly; however, you know, there 23 will be a significant portion of those that are using 24 methods other than point radius, and we do have the 25 information available to make that differentiation.
Page 98 1 alerts based on GPS speed? 2 A. The built-in speed alert functions of both 3 the 3000 as well as the 3030 are based upon GPS speed. 4 Q. But it's also possible to do speed alerts 5 based on the bus speed, correct? 6 A. It is technically possible to do, yes. 7 Q. When you did the -- when you researched the 8 speed alerts for the interrogatory response, were you 9 able to determine whether the speed alerts were set to 10 key off of the OBD speed versus the GPS speed? 11 A. The speed alert report that you received is 12 based upon a query of all scripts for 3000 and 3030 that 13 utilize the speed parameter in any way. Some of those 14 may use speed for some other reason, but there was not 15 an easy way from a database manipulation perspective to 16 make that differentiation, so we went ahead and gave 17 you the superset. There may be some that, you know, 18 don't fully meet the criteria under the patent that are 19 also included in that list, but it would be a subset. 20 Q. Do you know whether at least some of those 21 speed alerts are done based on the vehicle speed as 22 determined from the OBD port? 23 A. The report you got are all based upon using 24 OBD speed. They are not -- none of those were selected 25 based upon using speed -- the built-in GPS-based speed	Page 100 1 Q. Okay. So you can determine which of the 2 customers listed in Exhibit 16 do geofencing based on 3 the point radial type of geofencing? 4 A. Yes. 5 Q. Okay. And at least some of the customers 6 identified as doing geofencing in Exhibit 16 use the 7 point radial method. 8 A. I believe there are some that do, yes. 9 Q. And on paragraph or Section 3.5 of Exhibit 10 18 -- that's page 8183 according to the Bates labels -- 11 A. Yes. 12 Q. -- you have additional OBD parameters. Do you 13 see that? 14 A. Yes. 15 Q. One of them is "Integration with the OEM 16 security system," and another is "Integration with the 17 EOM keyless entry and remote start." Do you see that? 18 A. Yes. 19 Q. Both of those have bracketed afterwards 20 "Remove this requirement." Do you know why those 21 requirements were to be removed? 22 A. Because of the complexity of those two 23 particular functions and the fact that while it had come 24 up in hypothetical application discussion, there was no 25 active need to offer those features within the product.

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Page 101 1 Q. Does the 3030 offer either of those abilities? 2 A. No. 3 Q. Are there plans to offer those abilities in 4 the future? 5 A. Again it will be market driven. 6 Q. On page 8191, or the page marked with Bates 7 label 8191, there are a bunch of testing requirements 8 there. Are these the testing requirements that are used 9 for product validation? 10 A. No. This is with respect to production 11 testing, and this is actually a boilerplate page 12 basically highlighting to the development team that 13 this product needs to be reviewed against this list to 14 make sure all those capabilities are in place prior to 15 release. 16 Q. I'm going to hand you what was previously 17 marked as Exhibit 2 to Mr. Hergesheimer's deposition. 18 It's the advertising slick or datasheet on the 3030. Do 19 you know whether this is basically the same thing as we 20 looked at in Exhibit 1? 21 A. More or less it's the equivalent document 22 updated to reflect the 3030. The majority of the 23 content is very similar and in some cases was literally 24 carried over. 25 Q. On the front of this I see the same all caps	Page 103 1 what bus protocol is used by the vehicle? 2 A. Among other things, yes. 3 Q. Is that an important feature to have on an OBD 4 device like the LMU-3000 or 3030? 5 A. That's an important feature to have on any 6 fairly universal OBD product. 7 Q. The ability to identify -- 8 A. The ability to identify -- 9 Q. Let me ask it again. It is an important 10 feature to have a device like the LMU-3000 or 3030 is 11 the ability to automatically detect what type of bus 12 protocol and vehicle it's installed in. 13 A. Yes. 14 Q. Do -- strike that. 15 (Exhibit 19 marked.) 16 BY MR. SANTURRI: 17 Q. I'm going to hand you what I'm marking as 18 Exhibit 19 to your deposition, and for clarification 19 purposes Exhibit 19 is really a composite of two 20 documents. The first is CalAmp's responses to Omega's 21 first set of interrogatories which includes sales 22 information. If you go back to Exhibit A to the 23 document -- 24 A. Okay. 25 Q. -- and then there -- also attached at the back
Page 102 1 "Competitive Price, Competitive Technology, Competitive 2 Edge" that we talked about earlier. 3 A. Uh-huh. 4 Q. Do you see that? Is there any additional 5 benefits that the 3030 provided in terms of being able 6 to deliver a competitively priced device? 7 A. Well, you're reading from marketing 8 promotional bullets there, so, you know, specific to 9 this particular product the key enhancement with this 10 product was, you know, the addition of the backup 11 battery capability and the additional flexibility that 12 the platform afforded in terms of future-proofing, if 13 you will, in terms of its ability to be programmed to 14 handle an expanded set of OBD capabilities as well as 15 vehicle support. 16 Q. If you take a look on the back of Exhibit 2, 17 there's a section called "OBD Data Extraction." Do you 18 see that? 19 A. "OBD Data Extraction." 20 Q. Bottom right. 21 A. Yes. 22 Q. And it references "Automatic detection of 23 vehicle interfaces or services." Do you see that? 24 A. Yes. 25 Q. Is that referring to the ability to determine	Page 104 1 of Exhibit 19 is an updated -- updated sales information 2 that's all the way on the last page. It was Bates 3 labeled CalAmp 7640. Do you see that? 4 A. Yes. 5 Q. So if I can get you to turn first to the 6 original sales information that was Exhibit A, and it 7 also has a Bates label of CalAmp 303, do you see that? 8 A. Yes. 9 Q. Were you involved in calculating the data that 10 we have on CalAmp 303? 11 A. No, I was not. 12 Q. And do you know what -- you can see under the 13 column of "Operating Expenses" it has an asterisk there. 14 Do you see that? 15 A. Yes. 16 Q. And down below it says "Actual operating 17 expenses as a percentage of revenue." Do you know 18 whether -- well, first of all do you know whether 19 CalAmp tracks R&D costs for particular units? 20 A. Not specifically. 21 Q. I should probably have asked a better 22 question. Are you saying you don't know specifically 23 whether they track it or are you saying that CalAmp 24 does not specifically track R&D on a model-by-model 25 basis?

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Page 105 1 A. There's not a project-by-project specific cost 2 accounting activity with regards to R&D. 3 Q. Do you know whether there's an accounting of 4 selling expenses on a product-by-product basis? 5 A. Not that I'm aware of. 6 Q. And do you know whether there's a general 7 administrative expense tracked on a product-by-product 8 basis? 9 A. I don't believe there is. 10 Q. And is it also true that warranty accruals are 11 not tracked on a product-by-product basis? 12 A. Not to my knowledge. These are really beyond 13 or an area other than my own, so I don't know 14 specifically. 15 Q. Do you get data on profitability of products 16 over their lifetime? 17 A. I see it at a high level, typically not broken 18 down in a specific way. 19 Q. Does the profitability of particular models 20 have any bearing on the job that you do? 21 A. Typically that boils back down to margins 22 and, you know, looking at the costs associated with 23 the product, and that tends to be a major driver for 24 launching a redesign or a cost reduction effort. 25 Q. Was margin at all involved in deciding to do	Page 107 1 Q. What does that mean, field-related issues? 2 A. Where there might have been problems occurring 3 in the field that at least had relatively high potential 4 for being attributed to the 3030 device in terms of 5 compatibility with various vehicles. 6 Q. I thought you said that the 3030 was 7 compatible with more vehicles. 8 A. It is. 9 Q. So what was the compatibility issue? 10 A. The issue is that while the OBD standard is 11 called a standard, in practice it really isn't. The 12 OEMs implement various things different ways, and 13 literally every make and model behaves slightly 14 differently, and it's possible that in some cases when 15 a device is installed in the vehicle, that interaction 16 may disrupt other activity going on within the vehicle; 17 and while we make a best effort to avoid those and 18 validate that it doesn't occur ahead of time, there are 19 occasional instances where, you know, there may be a 20 problem that occurs after the fact that we have to go 21 back and address. 22 Q. Did Innova have its own OBD product of some 23 sort prior to the LMU-3030? 24 A. Innova is a supplier of OBD test tools, 25 handheld devices for reading OBD codes and the like that
Page 106 1 the LMU-3030? 2 A. Indirectly. There was a knowledge that we had 3 excessive costs associated with the 3000 that we needed 4 to bring under control. 5 Q. And that was -- did you say that the excessive 6 cost was based on having to pay B&B for their technology 7 or that it was based on just the physical cost of 8 manufacturing that? 9 A. It was actually based upon a combination of 10 both. It's both the hardware -- an expensive hardware 11 platform as well as an expensive royalty. 12 Q. If you can take a look at the last page of 13 Exhibit 19, that also bears CalAmp 7640 Bates label -- 14 A. Yes. 15 Q. -- there is a reference to a one-time 16 additional warranty reserve of 300,000 down towards the 17 bottom. Do you see that? 18 A. Yes. 19 Q. Do you know what -- why there was an 20 additional warranty reserve set aside for the 3030 field 21 issues? 22 A. I don't know specifically why that reserve 23 was taken during mid last year. There were a number 24 of field-related issues that came up that could have 25 triggered that.	Page 108 1 is sold to small repair shops, home mechanics and the 2 like. 3 Q. And that's the only OBD product that Innova 4 manufactured prior to the LMU-3030? 5 A. That's correct. They -- well, again Innova 6 does not manufacture anything related to the 3030. What 7 we did with Innova was we licensed the -- essentially a 8 custom software package from them that provided the OBD 9 functionality piece of the 3030 product. 10 Q. So did CalAmp develop the hardware side of the 11 OBD layer for the LMU-3030? 12 A. It was co-designed. 13 Q. With? 14 A. With Innova, and we manufacture it. 15 Q. At the bottom of CalAmp 7640 there's a 16 reference to "software support and OBD2 vehicle license 17 database and maintenance expenses." Do you see that? 18 A. Yes. 19 Q. Is that -- it says 25,000 a month. Is that an 20 expense that's going away as a result of the deal that 21 you've recently struck with Innova? 22 A. It has been -- those costs have been 23 restructured, and that particular cost is going away. 24 Q. I asked you about all of the costs or expenses 25 referenced on that first page on Exhibit A. It looks

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Page 109 1 like the same expenses are identified on CalAmp 7640. 2 I take it you don't have any more information on the 3 expenses listed on 7640. 4 A. No, I don't. 5 Q. You didn't prepare the chart on 7640? 6 A. No. 7 Q. Who within CalAmp generates that sort of 8 profit data? 9 A. I believe those reports were coordinated by 10 Gallin Chen. He doesn't actually prepare them. I 11 believe they were prepared by someone in our corporate 12 office. 13 Q. If you look at the last page 7640, it shows 14 a profit percentage of 2.44 percent on the 3030 and a 15 negative 1.48 percent on the -- I'm sorry. Strike that. 16 It shows a profit of 2.44 percent on the 3000. 17 Do you see that? 18 A. Where are you looking? 19 Q. On page 7640 there's the last column. It says 20 "Profit percentage of 2.44." 21 A. Yes, yes. 22 Q. Is that the type of profit margin you would 23 expect to have on any CalAmp product? 24 A. We would normally expect it to be somewhat 25 higher than that. I don't know what the normal numbers	Page 111 1 Q. Would you expect there to be -- 2 A. It -- 3 Q. Sorry. 4 A. It appears that this and, as well as the 3000, 5 what was provided appears to be what we sometimes refer 6 to as the customer version of this document which has 7 been, quote, sterilized to remove marketing information 8 and cost information and so forth, but version one 9 would have been the version that was signed off, and by 10 the filename it is the customer version. 11 Q. Under -- 12 A. On the front page there's a filename at the 13 bottom. 14 Q. I see. Okay. If you turn to Bates-labeled 15 CalAmp 8210, there's a section on "Commercial Overview" 16 that includes "Target Markets" -- 17 A. Yes. 18 Q. -- and then a bunch of sections that say 19 "Reserved." Would you expect that the internal version 20 of this would have more commercial information? 21 A. The version -- the blocks that are reserved 22 there normally contain projected market volume, pricing 23 and costs. 24 Q. And so you would expect the internal version 25 to have all those reserve columns -- all those reserve
Page 110 1 would be, but I know that it is currently running tight 2 on this product line as a whole. It's indicated, as you 3 see, on the 3030 being even negative. 4 Q. I take it CalAmp doesn't strive for a negative 5 profit margin on its products. 6 A. No, we don't. 7 (Exhibit 20 marked.) 8 BY MR. SANTURRI: 9 Q. I'm going to hand you what I've marked as 10 Exhibit 20 to your deposition. Do you recognize that as 11 the CRS for the 3030? 12 A. Yes, I do. 13 Q. And I see on the front page that there's no 14 signatures of authorized or approved, but it is version 15 1.0 that says the status is released. 16 A. Yeah. 17 Q. Do you know whether this is the most up to 18 date CRS for the 3030? 19 A. I believe it is the version that was approved; 20 however, I believe there may be some fine-tuning of 21 requirements and schedule that occurred after the 22 approval. 23 Q. I'm not sure I follow that, so is what we have 24 in Exhibit 20 a final CRS? 25 A. This was the final CRS.	Page 112 1 headings actually provide data? 2 A. That's correct. 3 Q. If you go two pages further to CalAmp 8212, it 4 says under 8.1.2 that "the LMU-3000 firmware will serve 5 as the base firmware for the LMU-3030." Do you see 6 that? 7 A. Yes. 8 Q. Is that for the application side firmware? 9 A. Yes. That's the LMU processor firmware. 10 Q. And there's completely different firmware for 11 the OBD side. 12 A. That's correct. 13 Q. And then you mention that there are 14 anticipated changes and additions. Do you know what 15 drove the changes and additions that you are listing 16 here? 17 A. Much of it came from the architectural change, 18 going from the B&B architecture to a general purpose 19 processor-based architecture like the 3030 uses. There 20 was new OBD firmware obviously associated with that 21 which was the major piece implementing the base set 22 of parameters here with a target of 85 percent vehicle 23 coverage; and compared to what we had for the B&B, that 24 was a significant expansion in the specific vehicle 25 coverage for having functionality.

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Page 113 1 Q. The coverage of 85 percent of the vehicle, 2 that was a significant increase? 3 A. Yes. 4 Q. Further down you reference "Support for pass 5 through of OBD to commands and data to PEG and hosted 6 applications." Do you see that? 7 A. Yes. 8 Q. What does that mean? 9 A. That was a target capability that in fact was 10 never implemented which was the ability for diagnostic 11 purposes and other reasons to be able to essentially 12 pass through raw data to and from the OBD interface on 13 the vehicle. In the end there were problems and risks 14 associated with that that we decided it was better to 15 keep the interface at a higher level. 16 (Exhibit 21 marked.) 17 BY MR. SANTURRI: 18 Q. I've handed you what I marked as Exhibit 21 to 19 your deposition. Can you tell me what Exhibit 21 is? 20 A. This is a document actually codeveloped by 21 one of our engineers Rad Ramachandran and the engineers 22 at Innova defining the interface between the LMU 23 software and the OBD software. 24 And that's the spelling. 25 THE REPORTER: Thank you.	Page 115 1 3030? 2 A. That's correct. 3 Q. Is there a reason why you didn't merge the 4 functionality of both the application processor and the 5 OBD2 processor into one? 6 A. It was easier and a much lower risk to keep 7 the processors architecturally separate. It also helped 8 in speed to market because we didn't have the complexity 9 of merging the code together. Because of the nature of 10 the way the LMU code is written, it does not lend itself 11 well to adding a second complex set of operations that 12 requires interfacing to the -- real-time interfacing to 13 the outside world. 14 Q. There's several -- if we have arrows going 15 from the LMU board to the OBD2 board, what does that 16 tell us? 17 A. That tells us that there's an instruction, 18 either a communication, an instruction via communication 19 or some type of a hardware flag or other stimulus going 20 from the one processor to the other indicating an action 21 to be taken or a change in state. 22 Q. So with the first one we have here an arrow 23 from the LMU to the OBD2 board. For power on the OBD2 24 board I take it that it's just a change of state in 25 terms of power?
Page 114 1 BY MR. SANTURRI: 2 Q. So is this document a document jointly created 3 between CalAmp and Innova? 4 A. Yes, it is. 5 Q. If you can go to CalAmp 8334 -- 6 A. Yes. 7 Q. -- it shows Section 2.1 the "Startup 8 Sequence." Do you see that? 9 A. Yes. 10 Q. I wonder if you can help me understand what 11 this diagram is showing us. So first all the way to the 12 left we have a section for "User Action." Do you see 13 that? 14 A. Yes. 15 Q. And then there's an arrow "Plug into OBD2 16 port." I assume that means that the user, the end user 17 is plugging the device into the OBD2 port, right? 18 A. That's correct. 19 Q. And then on the LMU board there's a reference 20 to a cold boot. What's that mean? 21 A. That's basically the processor starting from a 22 completely off nonoperational state. 23 Q. And then we have some arrows going from the 24 LMU board to the OBD2 board. Is that just the LMU board 25 within the 3030 and the separate OBD2 board for the	Page 116 1 A. Yeah. We're applying power to the OBD board 2 allowing its processor to start its own boot-up process. 3 The next two steps the LMU is checking to see if that 4 board is alive and ready to communicate yet, and when it 5 is, it gets the detected message -- 6 Q. So -- 7 A. -- back. 8 Q. -- the next one, the "CMD detect board," I 9 take it that's a command from the LMU board to the OBD 10 board? 11 A. That is correct. 12 Q. And the command is to detect the OBD board's 13 presence? 14 A. This would be to start the detection process 15 of identifying the vehicle that it is installed in. 16 Q. So the detect board means to identify -- 17 basically the application processor telling the OBD2 18 board to determine what the vehicle is? 19 A. Yeah. So the first -- the command detect 20 board is to the -- is checking with the OBD processor 21 "Are you there and alive ready to start taking 22 instructions and doing things." The command start 23 vehicle detect is actually the command now knowing that 24 the OBD processor is alive that says it's okay to go 25 ahead and start that vehicle detection process.

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Page 117 1 Q. I take it "RSP detected" means that that's a 2 response from the OBD2 board to the LMU board? 3 A. That's correct. 4 Q. And it's telling the LMU board that the OBD2 5 board is there? 6 A. It's basically telling the LMU that again the 7 OBD2 board is present and it is starting the vehicle 8 detection process. 9 Q. Well, the first response is just saying that 10 the OBD2 board is detected, right? 11 A. The first set of command and response is -- 12 is the OBD taking attendance. Is the OBD board there? 13 The second one is an actual command to go start doing 14 something, to go start detect- -- the detection process 15 on the vehicle, and the response is basically an 16 acknowledgment that just says "Okay. I got your 17 instruction. I'm going to go start doing that." 18 Q. And then we have the next two boxes, the 19 "Start Vehicle Detect" and the "Read VIN." Those are 20 actions taken by the OBD2 board? 21 A. Yes. 22 Q. And I take it that's simply just detecting the 23 vehicle and reading the VIN by the OBD2 board? 24 A. That's correct. 25 Q. And then we have a command from the OBD2 board	Page 119 1 in the vehicle, right? 2 A. It does go through that determination process, 3 yes. 4 Q. And then once it determines it's a CAN Bus or 5 a J1850, or whatever the bus is, then it's able to read 6 the VIN, right? 7 A. That's correct. 8 Q. And then the VIN goes to the LMU board, right? 9 A. Yes. 10 Q. And then the LMU processor sends a command to 11 a back end VIN decoder service. What's that? 12 A. That's the third-party service that I made 13 mention of that is able to reduce that VIN to the year, 14 make, model, engine configuration information from 15 which then we can derive a set of settings that are 16 communicated back to the device, to the OBD processor, 17 that say for this particular year, make, model, this 18 is how you get to a particular piece of OEM information, 19 for example, odometer or an OEM fuel parameter or 20 something like that. 21 Q. And who provides the back end VIN decoder 22 service? 23 A. That is -- up until this point that service 24 has been provided by Innova. It's actually a hybrid 25 service that they offer, and we are in the process
Page 118 1 back to the LMU board that says "Decode VIN," and then 2 in parens we have "Pass VIN." Do you know what that 3 command is for? 4 A. That starts the process of configuring the 5 vehicle or the device to operate on a specific vehicle. 6 We have -- we've determined what the VIN of that 7 vehicle is. We send that VIN off to be looked up in 8 an external database which will decode that VIN down 9 to a specific year, make, model configuration, and 10 the database will come back in the VIN decode message, 11 response message with the information in terms of the 12 appropriate settings to apply the appropriate parameters 13 to use and so forth to access nongeneric parameters, 14 OEM-specific parameters, related to that specific 15 vehicle. 16 Q. So the -- does the start vehicle detect, is 17 that just -- that's just determining the particular bus 18 protocol to be able to talk on, right? 19 A. The vehicle detection process that drives the 20 first two blocks there is basically identifying what 21 buses are utilized in that vehicle and communicating via 22 the generic OBD commands to ascertain the VIN of that 23 vehicle. 24 Q. So by the time the OBD2 board reads the VIN, 25 it had to have determined what type of bus was present	Page 120 1 of replacing that with an internal instance of 2 essentially the same thing that Innova does. 3 Q. So it would be a -- it would be -- the message 4 would be going to a CalAmp server -- 5 A. Yes. 6 Q. -- that contains the VIN data? 7 A. Yes. 8 Q. And is the VIN data purchased from Innova? 9 A. The VIN data itself reducing that to year, 10 make, model is purchased from an outside third party 11 that then that year, make, model information is applied 12 to a database that Innova previously provided, now 13 we've -- it's part of what we've licensed from them that 14 maps to the various settings that need to be transmitted 15 back to the device. 16 Q. And will the PULS server be used for that? 17 A. The PULS server is in the path, but it's not 18 involved in the actual processing of that data. 19 Q. And then once the year, make, model is 20 delivered from the outside server back to the LMU, then 21 there's a command sent to the OBD2 board providing 22 that vehicle detection information to the OBD2 board? 23 A. That's correct. 24 Q. And then there's a reference of "Look up local 25 vehicle communication database for PIDs." What's that?

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Page 121 1 A. When that year, make, model information and 2 those configuration settings come back from the server, 3 that maps to a database within the OBD firmware. So 4 what this describes is the process of taking that 5 vehicle's specific information, setting information 6 that we got from the server, delivering that to the OBD 7 board, and now the OBD board processor is associating 8 those settings with how to access the parameters that 9 are enabled on that specific vehicle. 10 Q. So the OBD2 board has a library of information 11 to basically know if it's a 2011 BMW 335. These pieces 12 of data are for the brake sensor or the throttle or 13 something like that, right? 14 A. Yeah. That library includes a combination of 15 factors including the specific parameter or effectively 16 address of where to get that data from as well as any 17 special timing or other protocol requirements that might 18 be associated with that particular OEM interface. 19 Q. So if you can -- if you have all of the data, 20 vehicle-specific data already stored in the OBD2 layer, 21 why not also have the year, make and model VIN decode 22 part in the OBD2 layer? 23 A. It's primarily a memory size constraint. 24 Q. And then after our "Look up local vehicle comm 25 database for PIDs" -- what does PID stand for?	Page 123 1 in some sort of volatile memory; is that right? 2 A. It's stored in nonvolatile memory. And as 3 long as it stays powered up or even if it goes through 4 a power cycle if when it wakes up it finds the same VIN 5 present -- this is sort of the flow for a first-time 6 installation. There's some shortcuts that get taken 7 on a power up after it's been configured to basically 8 streamline the process so if it discovers "Hey, I'm 9 still in the same vehicle," it basically skips through 10 the process and immediately applies the settings that 11 it already has. 12 Q. Even if the unit has lost power? 13 A. Yes. 14 Q. On the next page 8335 "Post discovery and 15 Param Samples," what's "Register for Param Samples" 16 mean? 17 A. Basically what happens is on the LMU side 18 the PEG script, one of the things that's done in the 19 scripted configuration file is the parameters that 20 are of interest for that particular customer or that 21 particular application are identified, and on this 22 interface between the LMU processor and the OBD 23 processor there is a process known as registration that 24 basically identifies to the interface "These are the 25 parameters that I want to see updates on." And so that
Page 122 1 A. Parameter identifier. It's basically the code 2 that is defined that's used on the bus. 3 Q. And then after that we have "Other process for 4 detection." What is that? 5 A. That's the other -- the other protocols that 6 might be associated with that particular vehicle. 7 Q. Other bus protocols? 8 A. Typically they're OEM protocols that might be 9 used not normally on the standard buses but might be 10 used on a proprietary serial bus, for example, that is 11 available on the OBD connector. 12 Q. And then we get a different signal that we 13 haven't seen yet "UnSOL." What is that, the last line 14 in OBD2 back to LMU? 15 A. I'm not sure what the acronym refers to, but 16 it's basically an acknowledgment coming back to the 17 LMU that the process has been completed and the device 18 should be fully operational in a configured manner on 19 that vehicle. 20 Q. And I know this -- that this startup sequence 21 started with a cold boot. As long as power isn't taken 22 away from the LMU-3030, it doesn't have to go back 23 through this identification process every time, right? 24 A. That's correct. 25 Q. So it stores the vehicle-specific information	Page 124 1 registration occurs. Then those -- then the data 2 associated with those particular parameters is the data 3 that is then presented and made available to the LMU 4 over the interface. 5 Q. And is the -- so are these certain parameters 6 that are continually updated to the LMU? 7 A. Yes. 8 Q. One of the responses -- the first response 9 we see there says "Provide VIN, proto, and supported 10 params." Do you know what proto, p-r-o-t-o, is? 11 A. I believe that's the protocol identifier 12 basically identifying, you know, what bus and protocol 13 are being used. 14 Q. Which CAN Bus or J1850 or something else is 15 used? 16 A. Correct. 17 Q. And then the next one that we have there, the 18 command going to OBD2 board, is that the LMU board doing 19 the registration process and identifying the specific 20 parameter IDs and interval for when the OBD2 board is 21 supposed to provide those updated -- 22 A. That's -- 23 Q. -- parameters? 24 A. That's correct. 25 Q. On the next page 8336 there's a section for

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Page 125 1 "Software Architecture" that says "embed Visio drawing." 2 If this weren't the customer version, would we have a 3 drawing there? 4 A. This is not the customer version. I'm not 5 sure why the drawing isn't there unless perhaps it just 6 didn't pick up when it was -- when it was -- I don't 7 know how this was in the format that it was delivered 8 perhaps. 9 Q. If you go to page 8337, there's a section on 10 the OBD2 processor. Do you see that? 11 A. Yes. 12 Q. And it says that "The following components are 13 part of the firmware," and the first one of those is 14 "Innova Library with the Vehicle Bus interface." Is 15 that all of the data on particular vehicles that we 16 talked about before? 17 A. Yes, it is. 18 Q. And then what's the vehicle communication 19 database? 20 A. That is also part of that -- what I referred 21 to as the library or database. 22 Q. That's the part that allows the LMU-3030 to 23 detect what type of bus it's on? 24 A. No, it's the -- there are the mapping of 25 special parameters, and then there's the -- how to	Page 127 1 Q. Do you know what device the LMU-3030 2 communicates with in the vehicle to allow it to 3 determine the VIN? 4 A. It's typically the primary ECU. In some cases 5 it's a maintenance controller, but in the majority of 6 them it's actually the primary engine controller. 7 Q. Do you know what the process is -- so if you 8 go back a couple of pages to 8334 in your Exhibit 21, 9 down towards the bottom of our -- of this vehicle 10 detection sequence -- "look up local vehicle comm 11 database for PIDs," does the OBD board query the bus 12 for any additional information at that point? 13 A. Not at that point. It's basically populating 14 itself with the information that it got from the library 15 server. 16 Q. And then the other processes for detection, is 17 it querying the bus at that point? 18 A. No. 19 Q. If you go back to where we were on 8337, 20 the -- you also mentioned "CalAmp Software Modules." 21 It looks like they share the same names as the modules 22 for OBD2. Are they -- are those modules the same or 23 different? 24 A. They're the same. This particular bullet 25 group under 2.4.2.2 is effectively expanding the detail
Page 126 1 communicate with that vehicle in terms of any special 2 protocols that might be associated. It's not really 3 a function of the detection process. It's a function 4 of when you're dealing with OEM parameters, they're 5 typically nonstandard. They're proprietary OEM 6 protocols, and so there is a library of essentially 7 communication handlers addressing those -- the need for 8 those special protocols. 9 Q. So, for example, on the GM vehicles they use 10 a form of CAN Bus that's proprietary to them, the GM 11 Land System. Is that the type of thing? 12 A. Yes. 13 Q. The next bullet point has "Modules," and it 14 has "Executive, LMU Processor Interface and BDM." What 15 do those -- do you know what each of those modules is? 16 A. The -- yes, I do. The executive is basically 17 the high level shell program, if you will. The LMU 18 processor interface is basically the implementation of 19 the protocol in this document basically bridging between 20 the two, and the VDM, or vehicle data manager, is an 21 intermediary piece that is capable of taking care of 22 special needs in terms of data translation, timing or 23 scheduling of special events, things like that. In the 24 final implementation they've actually been somewhat 25 blended together.	Page 128 1 of the module bullet from 2.4.2.1 above. 2 Q. If you'd go to CalAmp 8339, under the "OBD 3 Processor Startup," the "Read version -- message ID 41 4 read version," do you know what is being requested 5 there? Do you see that number 1? 6 A. Yes. I don't know specifically. It's likely 7 a software version ThinkUp, but I don't know that 8 specifically. 9 Q. And then the message ID 37 "Start Engine State 10 Detection," is that -- when it's referring to the engine 11 state detection, is that a processing within the OBD2 12 board or is that the vehicle's engine? 13 A. I believe that's within the board, but we're 14 getting into specific implementation questions that are 15 probably more appropriate for the software team than I'm 16 going to have detail for you. 17 Q. CalAmp 8342, this is referring to the VDM that 18 I think we talked about earlier -- 19 A. Yes. 20 Q. -- right? And the "Query for all DTCs 21 periodically," is that talking about asking the bus for 22 the diagnostic codes? 23 A. It's asking the OBD code, the OBD process 24 within the Innova code to check to see if there are any 25 pending trouble codes.

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Page 129 1 Q. And do you know whether the OBD board has to 2 send out a query on the bus to determine diagnostic 3 codes? 4 A. The nature of the OBD interface is such that 5 it's a query in response interface, so yes. 6 Q. If you can go forward a few pages to 83 -- 7 sorry, 8344, and we have 2.4.2.4.1.1.3. Do you know 8 what this table is showing us generally? 9 A. Yes. 10 Q. Okay. What is it? 11 A. This is actually providing the definition of 12 the various messages that are exchanged between the LMU 13 processor and the OBD processor. 14 Q. So all these messages are back and forth 15 between the LMU and the OBD boards within the CalAmp 16 unit. 17 A. Yes. So, for example, message ID 1 that you 18 have there, if you refer back to the communications 19 chart earlier in the document that we looked at, there 20 was a start vehicle discovery command. That would be 21 this command. 22 Q. On CalAmp 8349 there's a section called 23 "Unsolicited Messages." Do you know what that means? 24 A. Yes. 25 Q. What does that mean?	Page 131 1 Q. -- board. Is it fair to say that the pages 2 we have thereafter are -- at least up through 8388 -- 3 are providing more detail on each of the messages 4 covered in 2.4.2.4.1.1.3? 5 A. That is correct. 6 Q. Okay. And if you look at 8388, we have what 7 are referred to as OEM parameters. I'm assuming that 8 OEM in this context is the OEM vehicle manufacturer? 9 A. That would be correct. 10 Q. And then if you go a couple pages further 11 8390, Appendix A, are these the OBD parameters that can 12 be read or used by the LMU-3030? 13 A. Yes, it is although a number of these are -- 14 these are not only OEM parameters. This is the complete 15 list of parameters currently supported in the 3030. 16 Q. And this is -- these parameters -- when we 17 talked earlier about the 3030 supporting less parameters 18 than the 3000, these are the parameters that we talked 19 about in that context, right? 20 A. Yes. 21 Q. So the 3000 would -- presumably supports all 22 of the parameters in Appendix A and then some? 23 A. Yeah. 24 Q. On the next page in Exhibit -- in Appendix B, 25 do you know what vehicle bus indicators are?
Page 130 1 A. These are messages that can be -- the first 2 block of messages prior to this refer to messages that 3 are a specific request and a response, and these are 4 messages that can be generated automatically at -- 5 potentially at any time. 6 Q. And -- 7 A. It's unsolicited. 8 Q. -- the messages at 100 and above, the 9 unsolicited messages, are these messages to the -- 10 strike that. 11 Are the unsolicited messages messages from the 12 LMU board to the OBD2 board? 13 A. Actually it appears that these are all 14 messages coming from the OBD processor to the LMU. 15 Typically they're messages where we've previously made 16 a request, but we're not going to wait for a specific 17 response. We'll go on about our processing. And when 18 the OBD processor is ready, it will send that message 19 asynchronously when it's available. 20 Q. So the -- as opposed to the messages that we 21 had previously where it's all being sent by the LMU 22 processor and then a response is expected from the OBD2 23 board, these unsolicited messages are just OBD2 board 24 sending messages without any request from the LMU -- 25 A. Right.	Page 132 1 A. Yes. 2 Q. What are they? 3 A. These are -- this is essentially an extension 4 of the OBD parameters that is an array of what is 5 essentially status flags. The indicator zero you see 6 the ignition status. That's a derived indication of 7 whether we believe -- whether the OBD processor believes 8 the engine is running at that particular point. The MIL 9 status is the check engine light status and so forth. 10 Actually if I might correct myself, looking 11 more closely at Appendix A, this is the superset list 12 that is defined, and there are some of these that are 13 not supported on the 3030. 14 Q. Okay. So Appendix A is all of the parameter 15 IDs that are available on the bus that the 3000 can do? 16 A. I believe that is correct. 17 Q. And then the 3030 -- 18 A. Is -- 19 Q. -- does some of these and not others. 20 A. It's a subset of that, yes. 21 Q. Is there a way to determine from this document 22 which 3030 does not do? 23 A. Not directly, no. 24 Q. Then it looks like Appendix C is basically 25 the IDs for the year, make, model and engine that's

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Page 133 1 determined by that outside server? 2 A. Yes. Appendix C is basically the decoder for 3 the year, make, model, engine configuration information 4 which comes in in a numeric format, and this is 5 basically the conversion tables, if you will, to 6 identify, you know, based on that numeric coding what 7 the actual vehicle configuration is. 8 MR. SANTURRI: All right. Why don't we go 9 ahead and take a break. 10 THE VIDEOGRAPHER: Off the record at 2:31 p.m. 11 (Recess.) 12 THE VIDEOGRAPHER: Start of tape 3. We're 13 back on the record at 2:33 p.m. 14 BY MR. SANTURRI: 15 Q. Are you an inventor on any patents? 16 A. Yes, I am. 17 Q. How many? 18 A. Just one. 19 Q. Do you know -- who owns it? 20 A. It's assigned to CalAmp. 21 Q. What was the nature of the invention? 22 A. It has to do with the concept of virtual 23 ignition. 24 Q. What does that mean? 25 A. It's detecting a virtual or synthesized	Page 135 1 Q. Including the LMU-3000 and 3030? 2 A. In a reduced form it is present there, yes. 3 Q. What do you mean reduced form? 4 A. The nature of the patent includes the use of 5 multiple criteria in the decision-making process, and 6 the 3030 uses a subset of that -- of the possible 7 criteria. 8 Q. Okay. And that's the only patent that you're 9 on that you know of? 10 A. That's correct. 11 Q. Do you know what FleetOutlook is? 12 A. Only at a very high level. It's a product 13 through our wireless network division relative to fleet 14 management. It was part of a package of product that 15 was acquired when CalAmp acquired a company called 16 Wireless Matrix. 17 Q. And how is FleetOutlook used? 18 A. It's essentially -- as I understand it -- 19 again it's not product, so I'm not really directly 20 familiar with it -- as I understand it, it's a fleet 21 management package of some sort. 22 Q. From a software side? 23 A. Yes. 24 Q. Is it something that's used by the wireless 25 network division?
Page 134 1 indication of the state of the ignition of a vehicle 2 based on other criteria. The nature of this type 3 of product, such as the LMU, is that a lot of its 4 functionality is tailored around a knowledge of whether 5 or not the vehicle is operating or not. 6 And historically in the days of, you know, 7 hardwired installations, they would actually connect 8 the wire to the switched line that would have power only 9 when the key's turned on, so it would provide a very 10 accurate, specific indication of the state of the 11 ignition switch or the key switch in the car. 12 In the -- as the applications have expanded, 13 the issue of installation cost has become increasingly 14 at issue and for both hard-wired product as well as 15 product like the 3030, and relative to that particular 16 invention more importantly the 2000-type products, the 17 non-OBD products, it was important to be able to come 18 up with an alternative method with relatively high 19 confidence. It's not a perfect process, but a high 20 confidence process whereby you can determine that 21 more than likely this vehicle is operating, you know, 22 the engine is running, it's moving and so forth. 23 Q. And is that -- is that practiced in the CalAmp 24 products? 25 A. It is.	Page 136 1 A. Yeah. It's their product. 2 Q. And is it used as -- I think earlier we talked 3 about sort of the end user app portal. Is that the 4 purpose of FleetOutlook? 5 A. I believe FleetOutlook goes all the way to 6 being customer facing, end customer facing. 7 Q. And does it provide the end customer with the 8 ability to look at event reports and those sorts of 9 things? 10 A. The way those types of applications -- again, 11 you know, you have to bear with me because I don't know 12 the specifics of this particular product; but typically 13 what happens is an event report goes to the back end, 14 and the information that's presented to the end user is 15 a product of those event reports. They're not seeing 16 the actual specific details that are coming from the LMU 17 but a product of that. It may be a series of dots on 18 the map for tracking location, you know. It may say 19 that this vehicle stopped at a particular time, you 20 know, based upon information that the back end has 21 collected from the LMU. 22 Q. Does the -- do you know whether FleetOutlook 23 is a software solution that customers pay for? 24 A. I believe it is. Again I can't give you 25 factual specifics there because I'm not that -- that's

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Page 137 1 not my product. I'm not familiar with the details. 2 Q. Do you know whether there are other end user 3 facing portals that are offered by the wireless network 4 group? 5 A. There are several. 6 Q. Do you know what the names of the others are? 7 A. Not by specific name, but by function there 8 is -- they have a solution for the vehicle finance 9 business that we talked about that was originally 10 offered under the Aercept name. Then there is a 11 solution relative to the remote start product that we 12 work with Direct Electronics on. 13 Q. Okay. What remote start product do you do 14 with Direct Electronics? 15 A. Basically we provide a wide area trigger 16 capability for their existing remote start product that 17 you guys are familiar with. 18 Q. What do you mean a wide area solution? 19 A. Essentially over cellular, so, you know, they 20 can -- previously the remote start stuff that they were 21 doing was all long range key fob-type stuff. We provide 22 a cellular connection interface essentially to their 23 box. 24 Q. So you have a -- so there's a cellular module 25 that you provide DEI for the remote start module that's	Page 139 1 Q. And what about for the auto club industry we 2 talked about earlier? 3 A. No. 4 Q. They don't have one? 5 A. No. Their core business is more of a 6 middleware-type solution. They are capable -- you know, 7 they obviously acquired Wireless Matrix and the 8 associated product there, but their focus is more on 9 middleware, providing the datapipe and the connectivity 10 so that the customer -- the end solution provider 11 doesn't have to deal with that, the complexities of 12 that layer; but they can add their own value on the 13 user facing side, but we do have the capability and do 14 occasionally offer that. 15 Q. Do you know whether the sales of the wireless 16 network group that include LMU units and the full 17 package system, how -- do you know how those are priced? 18 A. I know nothing about their pricing or the 19 breakdown of their cost or offers. 20 Q. Do you know whether they -- whether when those 21 solutions are offered they're offered with an LMU at 22 CalAmp's cost as opposed to a marked-up product? 23 A. They -- their offerings are typically a 24 bundled solution type of offering. So, you know, 25 whether or not there's specific pricing identified to
Page 138 1 fixed in the car? 2 A. Yes. There's a black box that is essentially 3 a variant of the LMU that is used in two forms. In its 4 simple form it's literally just a communication gateway 5 to get the commands and acknowledgements back and forth 6 from that platform. In the second implementation that 7 capability is expanded to be able to do actual vehicle 8 tracking, you know, GPS-type stuff as well. 9 Q. And do you provide both of those options to 10 DEI? 11 A. Yeah. 12 Q. Do you know what the name of that DEI product 13 is? 14 A. I don't believe I do. 15 Q. You mentioned vehicle finance. Is that like 16 the buy here/pay here type of agreement? 17 A. That's correct. 18 Q. And then do you know what industry 19 FleetOutlook is used for? 20 A. I believe that is primarily used in the truck 21 and service fleet, you know, fleet management type of 22 sector. 23 Q. Do you know whether the wireless network group 24 offers an end user portal for the insurance industry? 25 A. I don't believe they have one.	Page 140 1 the LMU or not, I don't know any specifics to that or 2 whether they do or not. 3 Q. When did you first become aware of Omega 4 Patents? 5 A. I've been familiar with Omega for many years. 6 I personally have known Ken Flick since the late '90s, 7 so -- 8 Q. And you knew him in his role as running Omega 9 R&D? 10 A. Yes. 11 Q. And did you know him as a result of working on 12 that GPS 2000? 13 A. Yes. 14 Q. Were there other products that you worked on 15 for Mr. Flick? 16 A. No. 17 Q. And were you familiar with Omega Patents going 18 back that far? 19 A. I know of -- going back that far I knew that 20 he, you know, was involved with, you know, the creation 21 of patents associated with his business, but not 22 specifically as a -- operating as an IP holding company, 23 which I'm not sure that was even his business model 24 until after he sold the product business. 25 Q. Do you know or do you recall when you first

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Page 141 1 became aware of Mr. Flick or Omega's portfolio for 2 patents in the onboard diagnostic segment? 3 A. Relative to that total window it's been 4 relatively recently, but it's probably been several 5 years back at this point. 6 Q. What about the acquisition of patents in the 7 vehicle tracking field by Mr. Flick and Omega Patents? 8 When did you become aware of that? 9 A. About 30 seconds ago. 10 Q. Were you aware that Omega had patents to 11 vehicle tracking devices? 12 A. I know that he has patents in that space. I 13 was not familiar with him having acquired additional 14 patents in either of those spaces. 15 Q. Well, so I guess maybe my question wasn't 16 very good. When did you come to understand that either 17 Mr. Flick or Omega Patents had patents related to 18 vehicle tracking? 19 A. Probably in a similar time frame as to the 20 OBD. 21 Q. A couple years ago? 22 A. Yeah. 23 Q. And have you reviewed all the patents that are 24 at issue in this case? 25 A. I'm not sure that I've been through all of	Page 143 1 developing new products? 2 A. Again typically that's limited to the -- we 3 don't necessarily seek out -- just because we're doing 4 a product to go find out if there's anything out there; 5 but if we have knowledge of a specific IP, you know, 6 related to something that we're trying to offer, we may 7 do diligence on that. 8 Q. But there's no formal process or committee 9 with CalAmp for reviewing other patents in the industry? 10 A. No. 11 Q. Were you involved in -- well, strike that. 12 Do you understand that there are legal 13 opinions that have been provided by your counsel in 14 this case about noninfringement and/or invalidity of the 15 Patents-in-Suit? 16 A. Yes. 17 Q. Were you involved in collecting information to 18 provide to the lawyers for those opinions? 19 A. I have provided some of that information. 20 Q. And were you involved in any discussions with 21 counsel for purposes of preparing those opinions? 22 A. I was involved in reviewing the input that I 23 had provided. I was not involved in the opinions -- in 24 the development of the specific opinions. 25 Q. Do you recall what specific information
Page 142 1 them in great detail. I've at least looked at many of 2 them. 3 Q. Do you know when the first time was that you 4 looked at the patents involved in this case? 5 A. Not specifically, but I believe in terms of 6 any detailed review it was post filing. 7 Q. Okay. So then the first time you did any kind 8 of detailed review on the patents involved in this case 9 would have been after the lawsuit was filed? 10 A. Yes. 11 Q. You know that there were discussions between 12 CalAmp and Omega prior to the filing? 13 A. Yes. 14 Q. And you weren't involved in the review of the 15 patents prior to filing? 16 A. I don't recall being so. 17 Q. Does CalAmp regularly review patents of other 18 competitors? 19 A. Not on any sort of a formal basis. If we 20 become specifically aware of a conflict or a potential 21 conflict, you know, we will do our due diligence on it. 22 Q. In your role at CalAmp do you ever review the 23 patents of -- well, strike that. 24 In the context of your role at CalAmp do 25 you do patent searches or patent reviews when you're	Page 144 1 you provided to counsel for purposes of those 2 noninfringement or invalidity opinions? 3 A. Not specifically. I provided data on a number 4 of products that were in the market in early time frames 5 and identified a number of related patents some of which 6 are cited and some of which are not cited in Mr. Flick's 7 stuff. 8 Q. Do you recall which specific products you 9 identified to counsel as prior art products? 10 A. There were -- there are a number of our own 11 products that include prior art that came from a company 12 called Technicom as well as came from Aercept. There 13 are products from -- I'm trying to remember the name 14 of the company now. 15 I'm sorry. I don't recall the specifics, but 16 there were several products from the late '90s, early 17 2000 time frame from other companies besides Omega 18 that were combining GPS tracking along with cellular 19 communications type of capability as well as doing 20 various tracking types of applications. 21 Q. Do you know -- how did you locate the patents 22 that you provided to counsel? 23 A. Those were basically identified through my own 24 searching. 25 Q. Just searching on --

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Page 145 1 A. Just online searching. 2 Q. Did you search the USPTO database? 3 A. That is one of the sources I used. 4 Q. Do you know what else you searched? 5 A. Tip- -- typically I use PTO and Google. They 6 both have pros and cons as far as, you know, their 7 ability to use for research. 8 Q. When you say Google, you mean Google Patents? 9 A. Google Patents, yeah. 10 Q. Did you identify products in the OBD space to 11 counsel? 12 A. I -- I don't believe I identified any specific 13 products in the OBD space. 14 Q. Were you aware of any products that combined 15 GPS tracking and OBD functionality prior to Mr. Flick's 16 patents? 17 A. Not specifically that combination that I 18 recall. 19 Q. Did you work with anybody else at CalAmp to -- 20 as part of your review of the prior art? 21 A. On the CalAmp side the majority of the prior 22 art review was done by myself and by Gallin Chen and 23 some by Pete Hergesheimer as well. 24 Q. And was that -- was that something you took 25 upon yourself or was that task assigned to you to do the	Page 147 1 A. Primarily by phone. 2 Q. And how did you send all the prior art that 3 you located to counsel? 4 A. It was probably all by e-mail. 5 Q. Was it with Mr. Bailey or somebody else? 6 A. I don't recall offhand. 7 Q. Did you study issues of noninfringement or 8 just the invalidity side? 9 A. We -- I looked at it in both angles both 10 in terms of contrasting how we did things as well as 11 anything that might have, you know, predated. 12 Q. All right. Well, I understand that for the 13 purposes of providing prior art you can just send that 14 on to your lawyers, right? 15 A. Uh-huh. 16 Q. But what information did you provide your 17 lawyers for purposes of the noninfringement side of the 18 analysis? 19 MR. KAUTH: Can we just clear it up? We're 20 talking about the opinion letters, right? 21 MR. SANTURRI: Right, yeah. We're talking 22 about the opinion letters that were prepared in this 23 case. 24 THE WITNESS: Okay. In those cases it was 25 primarily -- for example, in the case of the geofence,
Page 146 1 prior art review? 2 A. That was -- my involvement was tasked to me. 3 Q. By who? 4 A. By my GM basically to support this whole 5 activity. 6 Q. Mr. Gower? 7 A. Yes. 8 Q. Who's Garo, G-a-r-o, Sarkissian, 9 S-a-r-k-i-s-s-i-a-n? 10 A. Garo is our senior VP of corporate 11 development. He is also Gallin Chen's boss. 12 Q. Did you interface with him for purposes 13 of the invalidity or noninfringement analysis? 14 A. He has been involved in some of those 15 conversations, yes. 16 Q. He was involved in conversations with you? 17 A. Yes. 18 Q. But you didn't talk directly to any lawyers at 19 this firm? 20 A. At this firm? 21 Q. Yes, sir, for purposes of the noninfringement 22 and invalidity. 23 A. I sent them information, you know, so yes, 24 there was dialogue. 25 Q. Was that in person, via phone, e-mail?	Page 148 1 you know, providing clarity that, you know, the majority 2 of our geofencing activity is not using the point 3 radius. You know, while we do have that capability and 4 we do have some customers using it that we have other 5 methods that are noninfringing. 6 So, you know, we look at how it's implemented, 7 you know, versus, you know, how it's patented and 8 identified. You know, basically those that are -- you 9 know, where there might be clearly noninfringing and 10 then those that could be construed as being within that; 11 and if we have -- you know, if they fall into that 12 category, you know, obviously we need to look more 13 closely. 14 BY MR. SANTURRI: 15 Q. Is there a -- for geofencing purposes within 16 CalAmp's LMU-3000 and 3030, is the -- and specifically 17 that point radial mechanism or methodology -- 18 A. Uh-huh. 19 Q. -- is that reference location stored within 20 the LMU device itself -- 21 A. Yes. 22 Q. -- as opposed to some companies who just send 23 position location and a back end determines whether a 24 geofence boundary has been crossed? Do you guys -- 25 A. When we talk -- when we talk about geofencing,

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Page 149 1 we talk about internal determination of a geo- -- of a 2 geoboundary crossing. So there is an identified point, 3 and this is another area where we've provided you 4 with a superset of information. 5 Your client claims a specific method of 6 setting that center point. We give it all because it 7 could be sent that way, but it could also be sent other 8 ways, and there is a radial distance from that. We'll 9 calculate where the current position is versus that 10 radial perimeter, if you will, and make a determination 11 within the box, you know, are we inside of it or are 12 we outside of it? Are we transitioning one way or the 13 other? 14 Q. Is there an advantage to using the point 15 radial geofence versus the other mechanisms? 16 A. It depends on the application. That 17 particular method is quick and easy to use when you're 18 trying to, you know, set a simple boundary around a 19 current location. One of the applications is, you know, 20 the vehicle is parked, and you want to set a boundary 21 around it to see is it moved out of that area, you know, 22 has it's been towed away or, you know, stolen, hot 23 wired, whatever. So you set a boundary around the 24 current location. There's not even any server 25 interaction in that particular case. The vehicle goes	Page 151 1 A. Yes. 2 Q. Is there is a particular industry or type of 3 service -- strike that. 4 Are there particular industries in which that 5 type of point radial geofencing is more common? 6 A. It's -- as a percentage of usage of that type 7 of feature, it's more common within the stolen vehicle 8 recovery types of applications; however, stolen vehicle 9 protection is of interest to many of our market 10 segments, you know, be it insurance, be it fleet 11 management or otherwise, so that type of functionality 12 you could find implemented in just about any market 13 segment's applications. 14 Q. Do you know whether -- we talked earlier about 15 the bundled solutions for the wireless network group. 16 Do you know whether CalAmp has some sort of web service 17 plans that generate continuing revenue based on the sale 18 of those bundled solutions? 19 A. Well, it's service bundled with hardware, so I 20 would expect that there would be. 21 Q. So people don't just pay for the, sort of the 22 upfront payment on the software/hardware bundle. The 23 customer may also pay for an ongoing basically server 24 costs for using CalAmp's servers? 25 A. Yeah. It's a service business, so I would
Page 150 1 passive. It takes its current location, sets the center 2 point and protects itself around that. 3 Q. How is that implemented? How is it -- let's 4 break it down. How does one go about implementing a 5 geofence based on that location without interaction with 6 the server? 7 A. It's scripted within PEG the script. It's 8 basically set to the current location as the center 9 point. 10 Q. So you do a script that would set a geofence 11 based on the location if it's been there for longer than 12 30 minutes or something like that? 13 A. It could be based on time. It could be based 14 on criteria as simple as the ignition was turned off, 15 and now I set a geofence around it. I set my center 16 point at whatever defined distance that I want to 17 protect it to and arm that, and it stays armed with that 18 geofence in place until the ignition is turned back on, 19 and it's done automatically. There's no interaction 20 with the server. In many applications it doesn't even 21 tell it that it's been parked. It's totally passive 22 within the device. 23 Q. And scripts set up like that would be amongst 24 the set that you provided in the interrogatory 25 responses?	Page 152 1 expect that to be a normal part of what they're offering 2 and their business model would be. 3 Q. Is there a -- is there an ongoing maintenance 4 or service contract that CalAmp sells on the MRM side -- 5 A. No. 6 Q. -- for the units? 7 A. No. It's a straight hardware sale as far as 8 MRM is concerned. 9 Q. And there's no -- do customers pay for -- 10 strike that. 11 Do MRM customers pay for post sale service, 12 integration, support, that sort of thing? 13 A. Generally not. 14 Q. Are there instances where they do? 15 A. There are some instances where they might pay 16 for out-of-warranty repairs or upgrades, but our PULS 17 server and its associated services and, you know, 18 customer technical support, as far as our customer, not 19 the end customer, are all included as part of the basic 20 sales support. 21 Q. And that sales support includes access to the 22 field application engineers? 23 A. Yes. 24 Q. And their assistance in either writing or 25 troubleshooting scripts?

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Page 153 1 A. Yes. 2 Q. Is the same -- strike that. 3 Is it the same PULS server that's used to 4 cross all of the LMU platforms? 5 A. Yes, it is. 6 Q. So there's not dedicated servers that may 7 service some platforms versus others? 8 A. No. There are multiple PULS servers to 9 support a development pipeline; but as far as what is 10 out there facing the commercially deployed installed 11 base of product, that's one platform for all products. 12 (Exhibit 22 marked.) 13 BY MR. SANTURRI: 14 Q. I'm going to hand you what's been marked as 15 Exhibit 22, and this looks to me like a -- basically a 16 press release when the LMU-3000 was launched. Does that 17 look about right to you? 18 A. That would appear to be the case, yes. 19 Q. And it references in the second paragraph 20 "Mobile data technologies are fueling new initiatives 21 within the commercial and consumer auto insurance 22 industry." The new initiatives are those just the -- 23 some of the businesses that we talked about earlier 24 like auto insurance and service clubs and those sorts 25 of things?	Page 155 1 essentially the same capabilities from a location and 2 OBD perspective but enhanced on the wireless side of 3 things. 4 Q. The LMU-3050 is that -- has that been 5 launched? 6 A. It's a branded European version of the 3030, 7 but it's essentially the same product. 8 Q. And where is that manufactured? 9 A. The same place as the 3030, in China, and 10 tested through here in the U.S. 11 Q. So the 3050 also comes into the U.S. for 12 testing and then is shipped to Europe? 13 A. That's correct. 14 Q. Back on that Exhibit 19, it was the 15 interrogatories with the sales data -- did you find 16 Exhibit 19? 17 A. 19? Yes, sir. 18 Q. There are references to monthly product costs. 19 Do you know what that means? 20 A. That is essentially an operations metric. 21 I don't know the specific details of it, but my 22 understanding is that that includes the -- both the 23 standard cost, the standard manufactured cost as well 24 as any production variances that have been associated 25 specifically with that particular product line.
Page 154 1 A. Yeah. This particular press release is really 2 referring to the auto insurance market and the desire 3 for them to go to or to be able to offer usage-based 4 rate plans or rate plan modification and introducing the 5 LMU-3000 essentially as an enabler for implementing of 6 those types of solutions. 7 Q. And do you recall whether there were similar 8 press releases for other industries that were associated 9 with the LMU-3000 or 3030? 10 A. I don't recall any other market-specific 11 releases. I believe there were other product-specific, 12 you know, product announcement type of releases, but I 13 don't recall any market-specific ones. 14 Q. I may have asked you this earlier, but is 15 there -- are there new versions of the 3000 or 3030 that 16 are currently in development? 17 A. There is -- there are several variants of the 18 3030 that are essentially the same platform tailored to 19 some slightly different markets that -- those that are 20 already released, for example, one we call the 3050 is 21 actually rolled into this data -- into the data that 22 we already have. There are future generation products 23 on the roadmap. The only one that is currently under 24 development is an LTE-based product so basically 25 expanding the wireless capability of the platform,	Page 156 1 Q. What do you mean production variances with 2 that product line? 3 A. If, for example, there's an engineering change 4 that comes out and there's a nonstandard set of costs 5 associated with reworking the product that's already in 6 the pipeline to incorporate that change, for example, or 7 there might be a mandatory software update that comes 8 out that needs to be applied to units that have already 9 been tested, and so that might cost additional expense 10 that that's not rolled into the standard cost that's 11 used by accounting to track the cost of that product. 12 Q. Do you know whether the 3000 and 3030 are 13 built based on forecasts or based on orders? 14 A. It's typically a combination of both. Our 15 pipeline tends to be very much order driven, but we 16 have some customers who are, you know, very much on a 17 repeatable run rate, and so we can plan those more in 18 advance, so it's a combination of the two. 19 Q. Do you know whether the --- strike that. 20 Do you know what level of granularity you can 21 provide for product cost; in other words, do you know 22 to what level of detail costs can be reduced down to 23 whether that's a production run or a per unit cost? Do 24 you know how costs are tracked? 25 A. What type of costs are you referring to?

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Page 157 1 Q. Well, let's start with manufacturing costs 2 like basically the cost of goods sold, the materials of 3 labor going into the actual manufacturing. Do you know 4 what level of detail is tracked for purposes of that 5 cost information? 6 A. At that level we typically work with a -- 7 with the standard cost which is mated with a 8 prenegotiated flat rate cost with our factory offshore, 9 so that particular element, you know, stays very 10 repeatable. The only exception to that would be if we 11 had a change that we asked them to do, and those will 12 come -- you know, we'll see that supplemental charge 13 come in either in terms of an adjusted product unit cost 14 or an exception cost that comes in. 15 Q. So the manufacturing cost for the Chinese 16 manufacturer, is that on a per unit or per hundred 17 units? How is that broken out? 18 A. It's on a per unit basis. 19 Q. And there's -- and that's a flat rate. It 20 cost, let's say, \$5 per unit and however many units, 21 it's just \$5 times the number of units? 22 A. Yes. 23 Q. And then do you know whether freight is 24 tracked on a product or platform basis? 25 A. Generally not because we commingle freight	Page 159 1 costs will be allocated specifically to that product, 2 and there should be visibility of that. 3 Q. In terms of the manufacturing cost that you 4 incur once the product gets back to the U.S., is that 5 all labor or are there some additional materials that 6 are added in at that point? 7 A. It depends on the product. In most cases 8 with standard product what comes in from China is the 9 complete material package, so what is added here on the 10 U.S. side is, you know, purely labor and facility cost. 11 There are some situations where we might be kiting 12 an accessory or some other material along with that 13 particular device, you know, where there may be some 14 hardware, some physical costs associated with it as 15 well. 16 Q. For the 3000 and 3030 is that -- is all the 17 material cost going to be incurred in the manufacturing 18 on the China side? 19 A. In the case of the 3000 and the 3030 the 20 majority is. The exception to that would be the 21 inclusion of SIM cards for a particular cellular 22 carrier and possibly custom packaging. There's a small 23 allocation for, you know, labels and packing material, 24 but that's the -- in the normal routine of things that's 25 the only hardware cost associated with the U.S. side.
Page 158 1 coming in. 2 Q. So you'd get a whole container full of 3 products, and there may be a mixture of multiple 4 products within the container? 5 A. That's correct. Internally we account for 6 that on a global allocation basis. It's not tracked on 7 an individual product basis. The exception to that 8 would be if we were expediting something by air freight 9 rather than putting it on a boat, you know, where 10 there's a direct correlation with a particular shipment. 11 Q. And then once the product gets back to the 12 U.S., do you -- how do you track costs at that point? 13 A. The product -- the costs are -- again are 14 tracked. Again it's not my area, so I can't give you, 15 you know, specifically accurate details; but in general 16 they -- the normal amount of handling and time that it's 17 on the test floor is rolled up into our standard cost, 18 and so just routine units flowing through, you know, it 19 will be, you know, the standard -- the standard finished 20 product cost will be a roll up of what we paid China 21 for the product plus the cost of test plus an internal 22 overhead allocation. If there are exceptions to that 23 flow, like the rework scenario I described, where there 24 is additional cost associated with a particular work 25 order which normally tracks to a specific product, those	Page 160 1 Q. And when the 3000 and 3030 arrive from China, 2 is there a dedicated line or set of employees who 3 specifically work on the 3000 and 3030 for purposes 4 of testing and provisioning and all those things? 5 A. There is a dedicated work cell to that type 6 of product. 7 Q. And so are you able to track labor expenses 8 specific to the 3000 and 3030 product line? 9 A. I believe they have that traceability. 10 Q. And is it still true that the -- that with 11 the 3000 and 3030 they are manufactured in China, 12 provisioned in the U.S. and then shipped to customers in 13 the U.S.? 14 A. Yes. 15 Q. And I assume any freight charges and taxes and 16 those sorts of things, these will be paid by your 17 customers? 18 A. That's the normal model. That's obviously, 19 you know, negotiated on a customer-by-customer basis, 20 but the default is that the customer pays shipping. 21 Q. With your particular customers, are they -- 22 are their orders handled on a -- sort of every order has 23 a new purchase order or do you have ongoing fulfillment 24 with certain customers? 25 A. It's done both ways. In some cases they give

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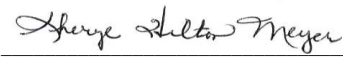
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Page 161 1 us specific individual orders, and other cases they may 2 give you a blanket order with, you know, scheduled 3 releases sort of a situation. 4 MR. SANTURRI: All right. Why don't we take a 5 quick break so I can take a look at my notes. 6 MR. KAUTH: Cool. 7 THE VIDEOGRAPHER: Off the record at 3:31 p.m. 8 (Recess.) 9 THE VIDEOGRAPHER: Back on the record at 3:44 10 p.m. 11 BY MR. SANTURRI: 12 Q. All right, sir. If you can go back to Exhibit 13 19 there and take a look at Exhibit A to 19. That was 14 CalAmp 303, the first of the two pricing spreadsheets. 15 A. Yes. 16 Q. If I can ask you to check my math, but the 17 monthly revenue appears to be about hundred bucks a 18 unit. Does that sound right? Strike that. Let me say 19 that again. 20 By my math the per unit price, the average 21 per unit price appears to be about hundred bucks, maybe 22 a hundred and one. Does that sound right to you? 23 A. It actually sounds a little bit high. 24 Q. Do you know -- why do you expect it to be less 25 than that?	Page 163 1 A. I don't -- I don't know. 2 Q. Do you know why the gross margin on the 3000 3 and the 3030 seem to be less than what CalAmp reports as 4 the typical margins in this segment? 5 A. I can't explain this particular variance. I 6 know that CalAmp typically reports at a macro level when 7 it comes to financials such as these; so, you know, if 8 these are low, then there's something else in the 9 product line that may be offsetting it to result in an 10 average level consistent with what's stated publicly. 11 Q. Do you know whether -- strike that. 12 Do you know which of CalAmp's products are -- 13 carry a higher margin? 14 A. Not comprehensively. Just as an example 15 perhaps a product like our 4000 series products, the 16 LMU-4200, 4250-type products, those are going into those 17 higher value markets and often will have, you know, a 18 higher margin associated with them. 19 Q. So it's more geared towards the industry in 20 which the product is being sold? 21 A. Oftentimes, yes. 22 MR. SANTURRI: I don't think I have any more 23 questions for you. 24 MR. KAUTH: All right. 25 THE WITNESS: All right.
Page 162 1 A. Well, it may vary depending upon the mix of 2 products, but the -- based on our -- on our -- a number 3 of our customers who have reached volume are 4 substantially under that hundred dollar number. 5 Q. Do you expect -- the price of the 3000 is 6 more, right? 7 A. I believe so, but again I don't know the 8 specifics. I don't normally quote product. 9 Q. The first month that we have on CalAmp 303 we 10 have six units for no revenue and some product costs 11 there. Do you know what the typical payment terms are 12 for these products? 13 A. They're typically -- our standard terms are 14 net 30. 15 Q. So it could be that in this April month that 16 you built and sold six but you hadn't been paid for 17 them? 18 A. It's possible that they weren't paid for. 19 It's also possible that they might have been -- because 20 that was literally first shipments, that might have been 21 some first pass, you know, beta test units that might 22 have gone at no charge. 23 Q. Do you know whether the monthly product costs 24 are the same costs that CalAmp uses for its audited 25 financials?	Page 164 1 MR. KAUTH: I have no questions. I'd like to 2 designate the transcript "Attorneys' Eyes Only" or 3 "Highly Confidential, Attorneys' Eyes Only" under the 4 protective order. 5 MR. SANTURRI: Okay. And will he read or 6 waive? 7 MR. KAUTH: He will read. 8 MR. SANTURRI: Okay. And the copy can go -- 9 MR. KAUTH: The copy can come to me, and I'll 10 get it to him for signature. 11 MR. SANTURRI: All right. 12 THE WITNESS: That will work. 13 THE VIDEOGRAPHER: Off the record at 3:49 p.m. 14 (The proceedings concluded at 3:49 p.m.) 15 16 17 18 19 20 21 22 23 24 25

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REPORTER'S CERTIFICATE I, Sheryl Hilton Meyer, Certified Shorthand Reporter in and for the State of California, do hereby certify: That the foregoing witness was by me duly sworn; that the deposition was then taken before me at the time and place herein set forth; that the testimony and proceedings were reported stenographically by me and later transcribed into typewriting under my direction; that the foregoing is a true record of the testimony and proceedings taken at that time. IN WITNESS WHEREOF, I have subscribed my name this 11th day of March, 2015.  Sheryl Hilton Meyer, CSR No. 2852	DEPOSITION ERRATA SHEET Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ SIGNATURE: _____ DATE: _____ STEPHEN HALL
DEPOSITION ERRATA SHEET Assignment Number 294665 OMEGA PATENTS, LLC v. CALAMP CORP. DECLARATION UNDER PENALTY OF PERJURY I declare under penalty of perjury that I have read the entire transcript of my deposition taken in the captioned matter or the same has been read to me, and the same is true and accurate, save and except for changes and/or corrections, if any, as indicated by me on the DEPOSITION ERRATA SHEET hereof, with the understanding that I offer these changes as if still under oath. Signed on the _____ day of _____, 20____. _____ STEPHEN HALL	DEPOSITION ERRATA SHEET Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ Reason for Change: _____ Page No. _____ Line No. _____ Change to: _____ SIGNATURE: _____ DATE: _____ STEPHEN HALL

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