

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE

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M2M SOLUTIONS LLC, )  
 )  
Plaintiff, )  
 )  
v. ) Civil Action No. 12-30-RGA  
 )  
SIERRA WIRELESS AMERICA, INC., )  
and SIERRA WIRELESS, INC., )  
 )  
Defendants. )  
 )  
 )  
M2M SOLUTIONS LLC, )  
 )  
Plaintiff, )  
 )  
v. ) Civil Action No. 12-32-RGA  
 )  
 )  
ENFORA, INC., NOVATEL WIRELESS )  
SOLUTIONS, INC., and NOVATEL )  
WIRELESS, INC., )  
 )  
Defendants. )  
 )  
\_\_\_\_\_)

**EXPERT REPORT OF KEVIN J. NEGUS, PH.D. REGARDING INVALIDITY OF  
US PATENT 8,094,010**

**CONFIDENTIAL PURSUANT TO PROTECTIVE ORDER**

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## VI. GENERAL TECHNOLOGY BACKGROUND

### A. Communications Networks

57. Engineers commonly describe communications between communications networking entities by the Open Systems Interconnection (OSI) 7-layer model (see, for example, ISO 7498 Standard at p. 28, or also Graves Reference at pp. 99-120). The “highest” or “top” layer is called the “Application Layer” (layer 7), which is the point at which the communicating entity (such as a person) interfaces with the communications channel in a manner specific to a given application (see, for example, IEEE Dictionary at p. 46). An example protocol at the Application Layer is the “HyperText Transfer Protocol” (or “HTTP” or “http”), which is used to access websites over the Internet. Applications are intended to be independent of the details of the actual communications channel involved. In contrast, the two lowest layers of the OSI model are the “Physical Layer” (or “PHY”, layer 1) and the “Data Link Control Layer” (or “DLC”, layer 2) which are very specific to the physical media over which communications occurs (see, for example, IEEE Dictionary at pp. 271, 824).

58. In all communications networks, the PHY layer defines many critical attributes of the media transfer path including at least the channel encoding, modulation format, channel access multiplexing, carrier frequency, and transmitted signal level as well as explicitly or implicitly defining the reverse procedures necessary for the receive path. The PHY layer transmits and receives “bits” converted into “signals” (see, for example, Graves Reference at Fig. 4.7, p. 115). Examples of different physical media include acoustic vibrations, electric fields, magnetic fields, radio transmissions, infrared emissions, electrical conductions, and optical fiber propagations.

59. The “middle” layers of the communications stack are, in theory, both application and media independent and include layer 3, the “network layer”, layer 4, the “transport layer”,

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layer 5, the “session layer” and layer 6, the “presentation layer” (see, for example, ISO 7498 Standard at p. 28). The term “network” is understandable to a layperson and is often used even by engineers in the context of “a series of points interconnected by communications channels” (see, for example, IEEE Dictionary at p. 725). However, for purposes of analyzing the details of communications systems involving a “network layer” it is important to understand that the purpose of the “network layer”, which is a defining characteristic of any communications “network”, is to “perform routing and relaying services necessary to support data transmission over interconnected networks” (see, for example, IEEE Dictionary at p. 726, or also ISO 7498 Standard at p. 41, Graves Reference at pp. 99-120). Examples of the network layer 3 include the Internet Protocol (or “IP”), which is used to exchange data within the Internet and many private packet data networks (or “PDNs”). Note also that the network layer is the only layer in which it is technically correct to describe discrete groups of data bits being exchanged as “packets” (or “datagrams”) versus “frames” at the DLC layer or “segments” at the transport layer or “messages” at the session layer and above (see, for example, Graves Reference at pp. 99-120).

60. The Internet was a very well known communications system at the time of filing of parent application to the ‘010 Patent. The Internet is a global “network of networks” that interconnects “hosts” across all such networks. The Internet is effectively defined by a collection of protocols known as the “Internet Protocol Suite” that operate across multiple layers of the OSI model but the core protocols of most general interest to all Internet-based applications are expressed in terms of a “Transport Layer”, an “Internet Layer” and a “Link Layer”. The Internet is a transport mechanism for messages that are exchanged between peer entities that operate at layer 5 and above (see, for example, Graves Reference at pp. 99-120).


## XII. CONCLUSION

735. In addition to the materials identified in Exhibit A, I may also review other documents in this matter. I may also review and comment upon the testimony of others that has been or will be given in this matter.

736. I reserve the right to add to or modify this expert report in the event that inaccuracies or omissions are discovered or if new or additional information is provided to me. I also reserve the right to make any such other changes as may be deemed necessary or appropriate.

737. I have not yet developed any demonstratives or illustrations to illustrate my opinions and the bases for those opinions; however, I reserve the right to present such demonstratives or illustrations at trial.

738. I reserve the right to supplement and/or amend my analyses and opinions expressed herein in response to any new, additional or modified positions taken by M2M, its experts or witnesses in reports, declarations, affidavits, or testimonies, whether in response to my report herein or in their coincident reports (or amendments thereto), to the extent such positions are relevant to the subject matter I have addressed in my report herein, or to the extent such positions cover topics relevant to this report for which M2M has the burden of proof.

Signature:   
Kevin J. Negus, Ph.D.

Date: May 5, 2014

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