DECLARATION OF DR. RAZIQ YAQUB

I, Dr. Raziq Yaqub, hereby declare that:

- 1. I am over the age of 21, and I have personal knowledge of the facts contained herein unless otherwise indicated.
- 2. I earned my Ph.D. in wireless communications from Keio University, Japan in 1998, and my MBA in marketing from Fairleigh Dickenson University in 2004. I received my Bachelor of Science degree in Electrical Engineering from the University of Engineering and Technology in Peshawar, Pakistan in 1987, and my Master's degree in Electrical Engineering from the same University in 1993.
- 3. I remained the Director of Technical Training at Niksun Inc. until May 2015. Niksun develops a wide array of real-time and forensics-based cybersecurity and network performance management solutions for government & intelligence agencies, service providers, financial services companies, and large enterprises such as retailers and manufacturers.
- 4. From January 2010 to January 2013, and prior to joining Niksun in December 2012, I was an associate professor/adjunct professor at the Stevens Institute of Technology and the University of Tennessee at Chattanooga teaching courses in 4G/Mobile Broadband System, Advanced Metering Infrastructure and Cyber Security, Smart Grid, and Power Systems, among others.



- 5. From 2001 to 2009, I was a Research Director (2001-2005) and an Executive Director (2005-2009) at Toshiba America Research, Inc. (TARI) where I performed as well as supervised research dealing with IP core networks.
- 6. From 1999 to 2001, I was an Assistant Manager at KDDI Japan. After I received my Ph.D. degree in 1998, I also worked as a Research Engineer for Nokia Research Center Japan before beginning work at KDDI.
- 7. A true and correct copy of my Curriculum Vitae is attached hereto as Attachment A.
- 8. During my time at TARI and, in fact, since 1999, I participated as a member in various working groups of the 3rd Generation Partnership Project (3GPP) to develop technical specifications for various technologies such as 4G LTE and others.
- 9. From 1999-2001, I was the chairman of Working Group-1 Mobile Wireless Internet Forum; from 2002-2003, I was the 3GPP Rapporteur for the TR33.8173GPP Technical Report, and throughout my time as a member of 3GPP, I served as the Chairman of various Technical Standards Ad-hoc meetings and groups.
- 10. 3GPP is a global initiative partnership that unites seven telecommunication standard development organizations from Japan (2 organizations), China, Korea, Europe, India, and the United States. The Goal of



3GPP is to provide its members with an environment to produce reports and specifications that define technologies covering cellular telecommunications networks, including radio access, the core transport network, and service capabilities—including work on codecs, security, and quality of service. The specifications also provide hooks for interworking with non-3GPP networks including Wi-Fi networks.

- 11. The technical specifications developed by 3GPP are contribution-driven by the 3GPP member companies.3GPP has four Technical Specification Groups (TSGs): Radio Access Networks (RAN), Service & Systems Aspects (SA), Core Networks & Terminals (CT), and GSM EDGE Radio Access Networks (GERAN). The Working Groups within the TSGs meet regularly and also have a quarterly plenary meeting where member companies' contributions, draft specification, and other discussion documents are presented for approval.
- 12. Based upon my experience as a regular attendee and a contributor of 3GPP meetings from 1999 to 2009, an adhoc Working Group Chairman, Working Group Rapporteur, and a member of a multitude of different Working Groups, I have been asked to identify and confirm the date of the document listed below, which is a technical specification from a 3GPP Working Group, distributed on 3GPP's website or otherwise made publicly available:



A. 3GPP TS 36.213 v8.2.0 (2008-03); Technical Specification; 3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer procedures (Release 8) (hereinafter "TS 36.213 v8.2.0") (Attachment B)

A. TS 36.213 v8.2.0

- 13. TS 36.213 v8.2.0 is a technical specification produced by 3GPP TSG RAN in March 2008. I know that the document was presented and discussed at a March 2008 working group meeting and published in March 2008 for a variety of reasons.
- 14. The "2008-03" designation on the header line of the document indicates that the document is a March 2008 version of the document. Each technical specification contains one or more history pages as the last pages of the document. These pages confirm that TS 36.213 v8.2.0 was changed at the RAN #39 meeting on March 5, 2008.
- 15. All specifications coming from TSG RAN 1 can be found at the following URL: http://www.3gpp.org/DynaReport/TSG-WG--R1.htm. If you select TS 36.213 v8.2.0, you are brought to a detail page for each version of the specification: http://www.3gpp.org/DynaReport/36213.htm. The page indicates that TS 36.213 v8.2.0 was available by March 20, 2008 from event "RP-39."



Selecting "RP-39" takes you to a new page,

http://www.3gpp.org/DynaReport/Meetings-RP.htm#RP-39, from which more details regarding the Working Group meeting are available. In particular, 3GPPRAN#39 was held from March 4, 2008 to March 7, 2008.

- 16. Although I was not present at this particular meeting, based upon my recollection of other Working Group meetings and the common practice of 3GPP at the time, TS 36.213 v8.2.0 was uploaded on the local server and made available to the meeting participants, and later, when the meeting was over, moved to the 3GPP public server where any interested member of the public, whether or not they were a member of 3GPP (or attendee or non-attendee of any Working Group meeting), could download and access the document.
- 17. While Working Group meetings were generally limited to the members of the Working Group, any interested member of the public would have been able to access the meeting materials, such TS 36.213 v8.2.0, on 3GPP's website. At the time, it was 3GPP's common practice to publicly announce Working Group meetings on their Webpage and then, shortly after the meeting was over, publish the discussion documents, technical specifications, etc. that were discussed during the meeting onto 3GPP's FTP server. The point of making meeting announcements public and publishing the technical specifications and other discussion documents onto 3GPP's server was to make the industry aware of



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