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10 UNITED STATES DISTRICT COURT
11 NORTHERN DISTRICT OF CALIFORNIA
12 SAN JOSE DIVISION

13 IN RE: APPLICATION FOR TELEPHONE) No. CR 15-90304 MISC LHK
14 INFORMATION NEEDED FOR A)
15 CRIMINAL INVESTIGATION) DECLARATION OF FBI SPECIAL AGENT
16) HECTOR M. LUNA
17)
18)

19 I, Hector M. Luna, a Special Agent with the Federal Bureau of Investigation (“FBI”) hereby
20 depose, declare, and state the following:
21

22 1. I am a Special Agent with the FBI, currently assigned to the Sacramento Division, and I
23 have been so employed by the FBI for over ten years. As a Special Agent of the FBI, I am authorized to
24 investigate violations of laws of the United States, and I am a law enforcement officer with authority to
25 execute arrest and search warrants under the authority of the United States. I have participated in a
26 variety of criminal investigations, including, but not limited to, bank robberies, kidnappings, extortions,
27 fugitives, violent gangs, and drug trafficking. I am currently assigned to the FBI’s Cellular Analysis
28 Survey Team (“CAST”).

1 2. I became a member of CAST in August 2013. As a member of CAST, I have received
2 training on the use of cellular technology in criminal investigations, including cell site location
3 information (“CSLI”). Members of CAST receive extensive training in radio frequency theory, cellular
4 telephone networks, and the analysis of call detail records, which include CSLI. I have received specific
5 training involving gathering, maintaining, and interpreting CSLI. I have also testified as an expert for the
6 government in three federal criminal trials and two state trials regarding historical cell site analysis of call
7 detail records for subject cellular telephones.
8

9 3. The general location of a subject cellular telephone at the time it was used for voice calls,
10 text messages, and data connections made to and from the subject cellular telephone may possibly be
11 determined via historical cell site analysis of call detail records with CSLI. In my experience, CSLI is
12 obtained and analyzed in the following way:
13

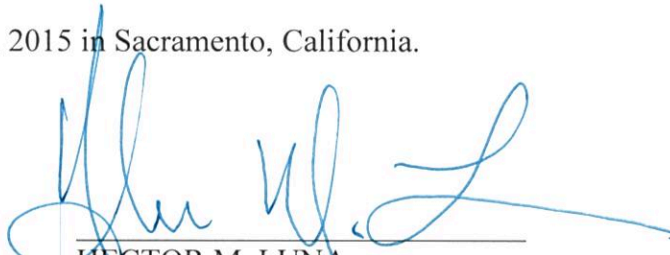
14 A. Call detail records for a subject cellular telephone are obtained from a cellular
15 service provider. Depending on the cellular service provider, call detail records may include voice calls,
16 text messages, and data connections made to and from the subject cellular telephone. Additionally, call
17 detail records may also include the cell tower and cell sector (also known as cell site) serving the subject
18 cellular telephone during each voice call, text message, or data connection. The majority, but not all, of
19 cell towers have multiple cell sectors. A cell sector, by design and configuration, is a specific geographic
20 area covered by a cellular radio antenna.
21

22 B. The general location of a cellular telephone at the time a voice call, text message,
23 or data connection is placed or received is determined by identifying the location of the cell tower and cell
24 sector that the cellular telephone used for that specific activity. In order for a cellular telephone to
25 connect to its cellular network it must be able to transmit and receive radio signals to and from cell towers
26 at a signal strength level determined by the network. A cellular telephone when turned on, and not in
27 airplane mode, is always scanning its network’s cellular environment and pre-selects the cell site with the
28 best signal to use when a user places or receives a voice call, text message, or sends or receives data.

1 Generally, a cellular telephone will select a cell site that is in close proximity or a cell site in direct line-
2 of-sight. Regardless, the cellular telephone determines which cell site it will use at the origination of a
3 voice call, text message, or data session. In my experience, CSLI for a cellular telephone is not generated
4 when a cellular telephone is turned off, in airplane mode, or when neither making nor receiving a voice
5 call or text message. However, CSLI for a cellular telephone may still be generated in the absence of user
6 interaction with a cellular telephone. For example, CSLI may still be generated during an incoming voice
7 call that is not answered. Additionally, most modern smart cellular telephones have applications that
8 continually run in the background that send and receive data (e.g. email applications) without a user
9 having to interact with the cellular telephone.
10

11 C. The distance between cell towers in a given location is taken into consideration
12 when determining the general location of a cellular telephone that used a cell site in that given location.
13 For instance, some geographic areas, such as rural areas, contain few cell towers spaced many miles apart;
14 whereas other similar size geographic areas, such as urban environments, contain many cell towers spaced
15 much closer together; sometimes only hundreds of feet apart. Thus, a cellular telephone that used a
16 particular cell site inside a geographic area with few cell towers may have been physically located
17 anywhere within a larger geographic area. Conversely, a cellular telephone that used a particular cell site
18 inside a geographic area with many cell towers may have been physically located anywhere within a
19 smaller geographic area.
20

21 4. I declare under penalty of perjury that the foregoing is true and correct to the best of my
22 knowledge and belief. Executed this 18th day of June, 2015 in Sacramento, California.
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HECTOR M. LUNA
Special Agent
Federal Bureau of Investigation