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Re: State of California vs. Felix R. Ayala

Historical Cellular Analysis Report.

I have carefully reviewed the AT&T Call Detail Records (CDRs) and NELOS report for cell phone 530-736-3231, associated with Felix R. Ayala. I have found numerous errors and discrepancies with these reports. Namely:

- We have CDRs from 07/01/2015 to 10/31/2015 representing 17022 Voice records, 14612 Data records, and 9087 Text records. Within these 40721 records numerous occurrences of a default value of -1.0 for the Beam Width is recorded. The beam width of an antenna must be a positive value representing the degrees covered by that antenna. This error occurs far beyond 500 times (when this researcher abandoned count), probably in the thousands.
- Additionally, on hundreds of occurrences the default value -1 is displayed when an Azimuth angle of 0 to 359 degrees is expected. This azimuth value represents the center point of a sector antenna and establishes its direction of operation.

The NELOS records fair no better. Beyond the admonition at the top of each page to "Please exercise caution in using these records for investigative purposes as location data..." the error metric for the critical time period from 14:15 to 16:00 on 10/04/2015 is insufficient, on occasion, to explain how a cell phone moves 5.0 miles within 3 seconds.


- Item 2085 at GMT 22:30:28 and item 2086 at 22:30:25 are separated by 3 seconds, yet their cell phone location changes from latitude 40.618557, longitude -122.32296 to 40.687164, -122.35365 a distance of 5.0 miles.
- Items 2089 and 2090 show an identical result.
- Items 2099 and 2100 show a location difference of 3.15 miles within 1 second. (We are approaching near Space Shuttle speed, here.)

Finally, in my opinion, the maps as drawn by Hawk Analytics (CellHawk) are false, misleading, and prejudicial. They need to be corrected before being presented as evidence. My two objections are the limited range of Radio Frequency (RF) signal inferred by these maps and the antenna propagation pattern is represented as simplistic “V shaped” wedges.

- The actual range of a cell phone signal exceeds 21 miles. [1] The premier federal science organization, National Institute of Standards and Technology, stated, “Cell towers can service phones at distances of up to 35 kilometers (approximately 21 miles) and may service several distinct sectors.”
- The propagation pattern of a sector antenna is cardioid in shape and has considerable overlap with its neighboring antennas. This overlap feature ensures no “dropped calls” when a cell phone travels through a sector’s coverage area. [2]

[1] **Guidelines on Cell Phone Forensics**, NIST Special Publication 800-101, document Page 63, Paragraph 2. Published in May 2007.

[2] As an example see, ZDA Communications, Inc.

A handwritten signature in cursive script that reads "Manfred Schenk". The signature is written in dark ink on a light-colored background.

Manfred Schenk

Cell tower coverage

State of California vs. Felix R. Ayala
Case No.:

