

DIGITAL EVIDENCE IN INVESTIGATIONS

DIGITAL EVIDENCE IN INVESTIGATIONS?

WHERE DOES IT COME FROM?

WHAT IS IT?

WHAT IS IT WORTH?

WHERE DOES IT COME FROM?

WHAT IS IT?

WHAT IS IT WORTH?

WHERE DOES IT COME FROM?



Cellular Networks

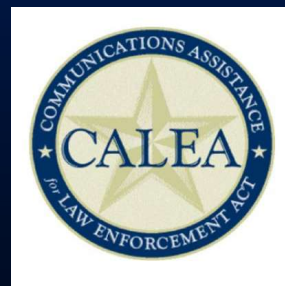




AT&T

T Mobile®

The Communications Assistance for law Enforcement Act (CALEA) is a statute enacted by Congress in 1994 to require that telecommunications carriers and manufacturers of telecommunications equipment design their equipment, facilities, and services to ensure that they have the necessary surveillance capabilities to comply with legal requests for information. CALEA is intended to preserve the ability of Law Enforcement agencies to conduct electronic surveillance while protecting the privacy of information outside the scope of the investigation.



CalECPA

On Jan. 1, 2016, the landmark California Electronic Communications Privacy Act (**CalECPA, SB 178**) went into effect.

CalECPA has been hailed as "the national standard" because no California government entity can search our online accounts without our consent, or showing it is an emergency.



ACLU NorCal

(Slip Opinion)

OCTOBER TERM, 2017

1

Syllabus

NOTE: Where it is feasible, a syllabus (headnote) will be released, as is being done in connection with this case, at the time the opinion is issued. The syllabus constitutes no part of the opinion of the Court but has been prepared by the Reporter of Decisions for the convenience of the reader. See *United States v. Detroit Timber & Lumber Co.*, 200 U. S. 321, 337.

SUPREME COURT OF THE UNITED STATES

CARPENTER *v.* UNITED STATES

CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR
THE SIXTH CIRCUIT

No. 16–402. Argued November 29, 2017—Decided June 22, 2018

Cell phones perform their wide and growing variety of functions by continuously connecting to a set of radio antennas called “cell sites.” Each time a phone connects to a cell site, it generates a time-stamped record known as cell-site location information (CSLI). Wireless carriers collect and store this information for their own business purposes.

2025

THE PEOPLE OF THE STATE OF CALIFORNIA

SECTION 1. Chapter 3.6 (commencing with Section 1546)

CHAPTER 3.6. Electronic Communications Privacy Act

1546. For purposes of this chapter, the following definitions apply:

VOLUME

Includes enactments of the
2025 Statute Year Regular and Special Sessions

Also Includes
Related Laws from the following
Business and Professions •
Family • Fish and Game •
Government • Harbors and Navigation •
Insurance • Public Resources •
Streets and Highways • Welfare



WHAT IS THE RESULT OF THESE CELLULAR NETWORKS?

Interpreting Call Detail Records

Your response
columns.

Multimed

appear on this report. Calls made while roaming also do not appear on this report.

Entries with
outgoing

Please refer
detail record

specific times other than our default are important to your inquiry, please submit legal demands with the date range/time frame adjusted for UTC to avoid delay or confusion. We are unable to convert the time displayed in the records to the local time of the handset.

The columns present on your CDR may be:

COLUMN NAME	DESCRIPTION	LOCATION RPT ONLY?	NOTES
Date	Date format mm/dd/yyyy	NO	
(UTC) Time	24 hour time format - hh:mm:ss in UTC	NO	In UTC time
Duration	Duration hh:mm:ss	NO	
Call Type	Type of call: callForwarding = Forwarded Call; mSOriginating = Outgoing Voice Call; mSTerminating = Incoming Voice; mSOriginatingSMSinMSC = Outgoing SMS; mSTerminatingSMSinMSC = Incoming SMS; moc=Mobile Originating Call; mtc= Mobile Terminating Call	NO	
Direction	Outgoing or Incoming to the target telephone number	NO	
Calling Number	Phone number that initiated the call	NO	
Dialed Number	Dialed digits	NO	
Called Number	Phone number that received the call	NO	
Destination Number	The final destination number to which the network has connected the call (might be different from the one dialed by subscriber if network translation was applied)	NO	
IMSI	International Mobile Subscriber Identity of the target number, if present	NO	
IMEI	International Mobile Equipment Identity of the target number, if present	NO	
Completion Code	Completed successfully or Abnormal Completion (network interruption). Abnormal completion calls display on this report but may or may not show on a customer's bill.	NO	
Answered?	Answered or Unanswered. Unanswered calls display on this report but may or may not show on a customer's bill.	NO	
Service Code	11 Calling line identification presentation 12 Calling line identification restriction 13 Connected Line ID Presentation 20 All Call Forwarding Services 21 Call Forwarding Unconditional (CFU)	NO	

Date	Time	Duration	Call Type	Direction	Calling Number	Dialed Number	Called Number	Destination Number	IMSI	IMEI	Completion Code	Service Code	Switch Name	1st LTE Site ID	1st LTE Sector ID	1st LAC	1st Cell ID	1st Tower Azimuth	1st Tower LAT	1st Tower LONG	1st Tower Address	1st Tower City	1st Tower State	1st Tower Zip
07/20/2023	05:29:14	1	moc	Outgoing	17147106351	17142317813	17142317813	17142317813	310260273154929	355657111504960	Completed Successfully		NFTAS402	98952	6			160	33.79685187	-118.0068869	12456 Beach Blvd	Stanton	CA	90680
07/20/2023	05:29:33		moc	Outgoing	17147106351	17142317813	17142317813	17142317813	310260273154929	355657111504960	Completed Successfully		NFTAS402	98952	6			160	33.79685187	-118.0068869	12456 Beach Blvd	Stanton	CA	90680
07/20/2023	05:35:27	19	mtc	Incoming	16572478348	17147106351	17147106351	17147106351	310260273154929	355657111504960	Completed Successfully	11	NFTAS402	98952	16			160	33.79685187	-118.0068869	12456 Beach Blvd	Stanton	CA	90680
07/20/2023	05:35:58	78	moc	Outgoing	17147106351	16572478348	16572478348	16572478348	310260273154929	355657111504960	Completed Successfully	42	NFTAS402	98952	16			160	33.79685187	-118.0068869	12456 Beach Blvd	Stanton	CA	90680
07/20/2023	05:36:29	5	moc	Outgoing	17147106351	17142317813	17142317813	17142317813	310260273154929	355657111504960	Completed Successfully		NFTAS402	98952	16			160	33.79685187	-118.0068869	12456 Beach Blvd	Stanton	CA	90680
07/20/2023	06:12:39		moc	Outgoing	17147106351	17142317813	17142317813	17142317813	310260273154929	355657111504960	Abnormal Completion		NFTAS402	98952	16			160	33.79685187	-118.0068869	12456 Beach Blvd	Stanton	CA	90680
07/20/2023	06:13:00		moc	Outgoing	17147106351	16579448694	16579448694	16579448694	310260273154929	355657111504960	Abnormal Completion		NFTAS402	98952	16			160	33.79685187	-118.0068869	12456 Beach Blvd	Stanton	CA	90680
07/20/2023	06:13:04		moc	Outgoing	17147106351	17142317813	17142317813	17142317813	310260273154929	355657111504960	Abnormal Completion		NFTAS402	98952	16			160	33.79685187	-118.0068869	12456 Beach Blvd	Stanton	CA	90680
07/20/2023	06:14:50	510	mtc	Incoming	17142317813	17147106351	17147106351	17147106351	310260273154929	355657111504960	Completed Successfully		NFTAS402	98952	16			160	33.79685187	-118.0068869	12456 Beach Blvd	Stanton	CA	90680

LAC; LOCATION AREA CODE

CID; CELL ID

Cell Location

[000000002:0:0.0:0.0:-1:-1.0]

[55505/46361:117.263196:33.948323:120:-1.0]

[55505/01961:-117.263196:33.948323:120:-1.0]

[55505/46361:-117.263196:33.948323:120:-1.0]

[55505/46361:-117.263196:33.948323:120:-1.0]

[55505/46361:-117.263196:33.948323:120:-1.0]

[55557/26501:-118.164753:33.912339:100:-1.0]

[000000002:0:0.0:0.0:-1:-1.0]

[000000002:0:0.0:0.0:-1:-1.0]

[55557/26502:-118.164753:33.912339:220:-1.0,
55557/26441:-118.178452:33.926726:150:-1.0]

THOSE TWO NUMBERS ALONE WOULD TAKE YOU TO THE PRECISE CELL TOWER AND CELL SECTOR.

55505 IS THE LAC WHICH IS A BROAD GROUP OF CELL TOWERS.

4636 IS THE CELL TOWER NUMBER.

1 IS THE SPECIFIC SECTOR NUMBER OF THE 3-SIDED ATT SECTOR.

LATITUDE

LONGITUDE

Cell Location

[000000002:0:0.0:0.0:-1:-1.0]

[55505/46361:-117.263196:33.948323:120:-1.0]

[55505/01961:-117.263196:33.948323:120:-1.0]

[55505/46361:-117.263196:33.948323:120:-1.0]

[55505/46361:-117.263196:33.948323:120:-1.0]

[55505/46361:-117.263196:33.948323:120:-1.0]

[55557/26501:-118.164753:33.912339:100:-1.0]

[000000002:0:0.0:0.0:-1:-1.0]

[000000002:0:0.0:0.0:-1:-1.0]

[55557/26502:-118.164753:33.912339:220:-1.0,
55557/26441:-118.178452:33.926726:150:-1.0]

THESE TWO NUMBERS WOULD ALSO TAKE YOU TO THE PRECISE CELL TOWER; EXCLUDING ALL OTHER CELL TOWERS NOT WITH THAT LAT/LON.

THE OTHER CELL TOWERS HAVE THEIR OWN LAT/LON.

Cell Location

[000000002:0:0.0:0.0:-1:-1.0]

[55505/46361:-117.263196:33.948323:120:-1.0]

[55505/01961:-117.263196:33.948323:120:-1.0]

[55505/46361:-117.263196:33.948323:120:-1.0]

[55505/46361:-117.263196:33.948323:120:-1.0]

[55505/46361:-117.263196:33.948323:120:-1.0]

[55557/26501:-118.164753:33.912339:100:-1.0]

[000000002:0:0.0:0.0:-1:-1.0]

**AZIMUTH; OR
ORIENTATION**

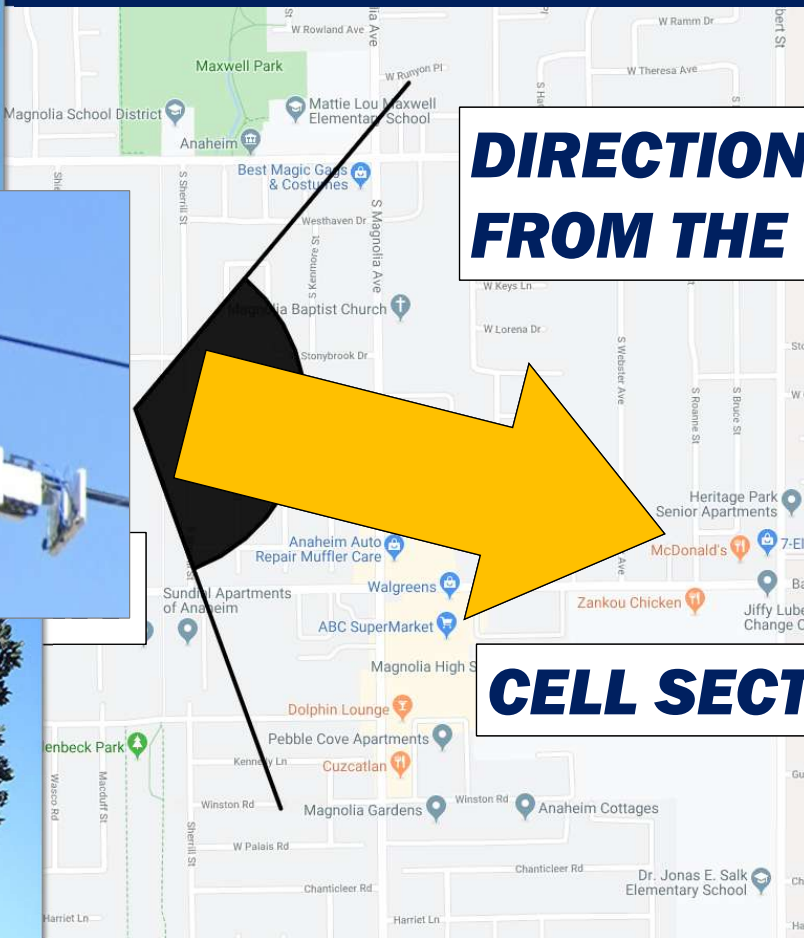
**THIS IS THE MIDDLE OF THE SECTOR;
THE COMPASS HEADING.**

**+ 60 DEGREES AND -60 DEGREES FOR
THE 120 DEGREE SECTOR EMINATING
FROM THE TOWER.**

**WITH THIS INFORMATION, NOW YOU
KNOW EXACTLY WHERE SECTOR 1 IS.**

WITH ALL OF THE ABOVE INFORMATION, YOU COULD DRAW THAT PRECISE CELL TOWER AND PRECISE CELL SECTOR WITHOUT THE ASSISTANCE OF A COMPUTER ANALYSIS AND MAPPING SOFTWARE OF ANY SORT; A PROTRACTOR, RULER AND A #2 PENCIL.

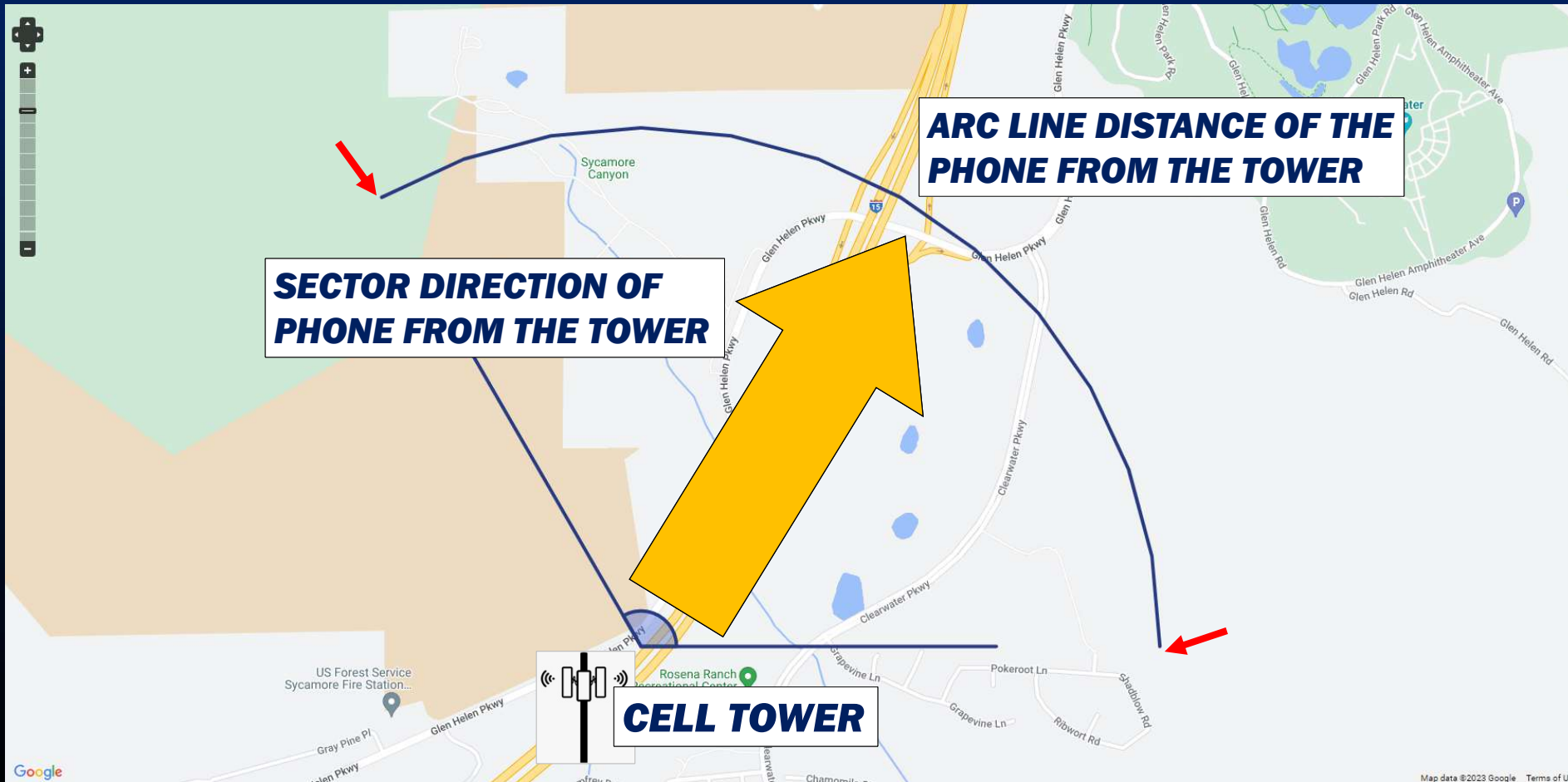
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55557/26441:-118.178452:33.926726:150:-1.0]

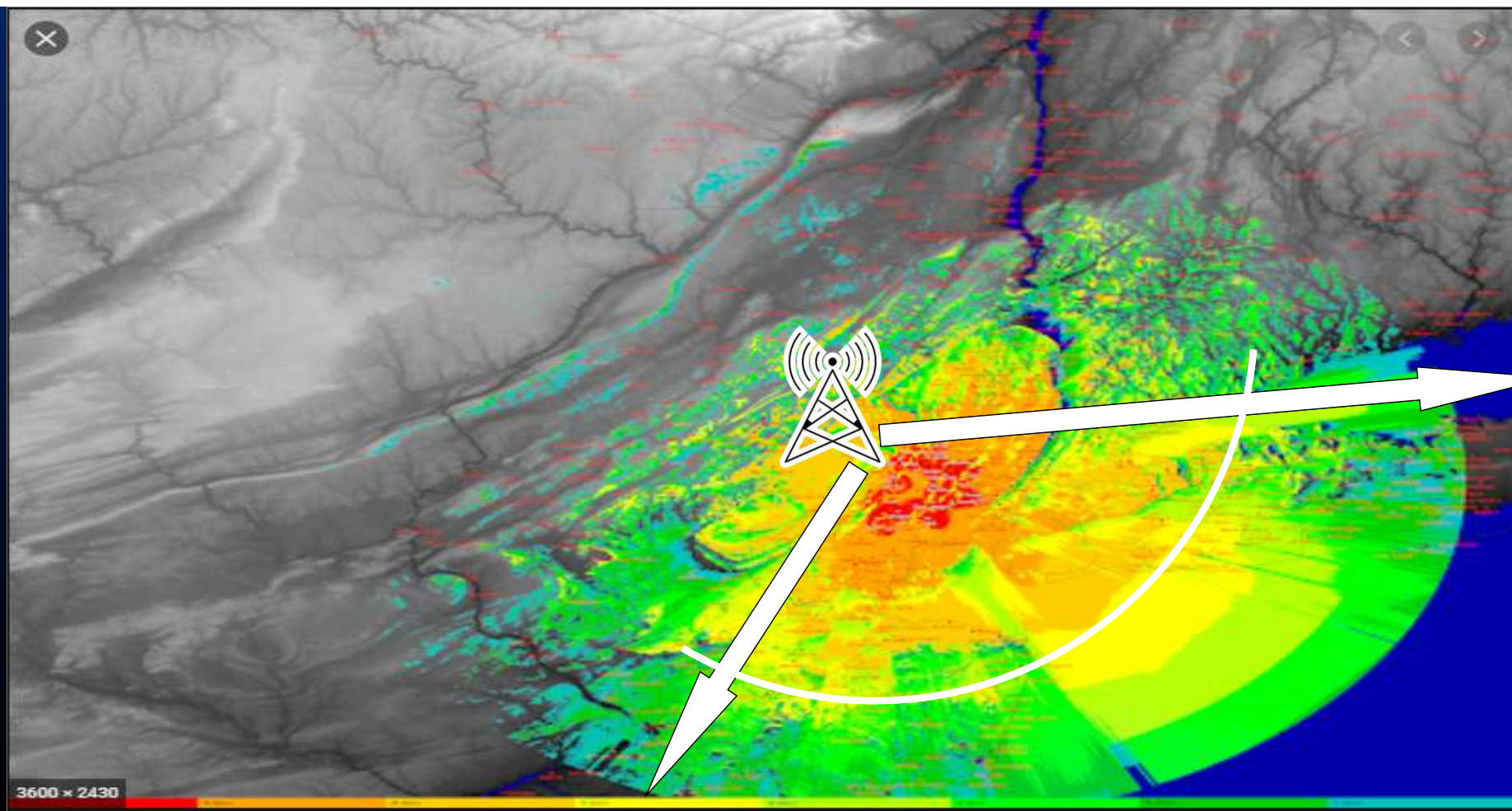


***DIRECTION OF PHONE
FROM THE TOWER***

CELL SECTOR



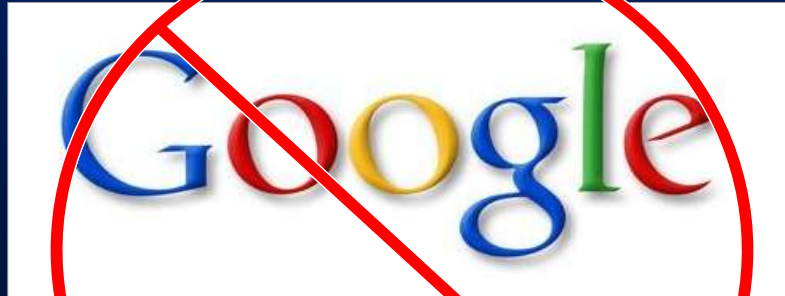




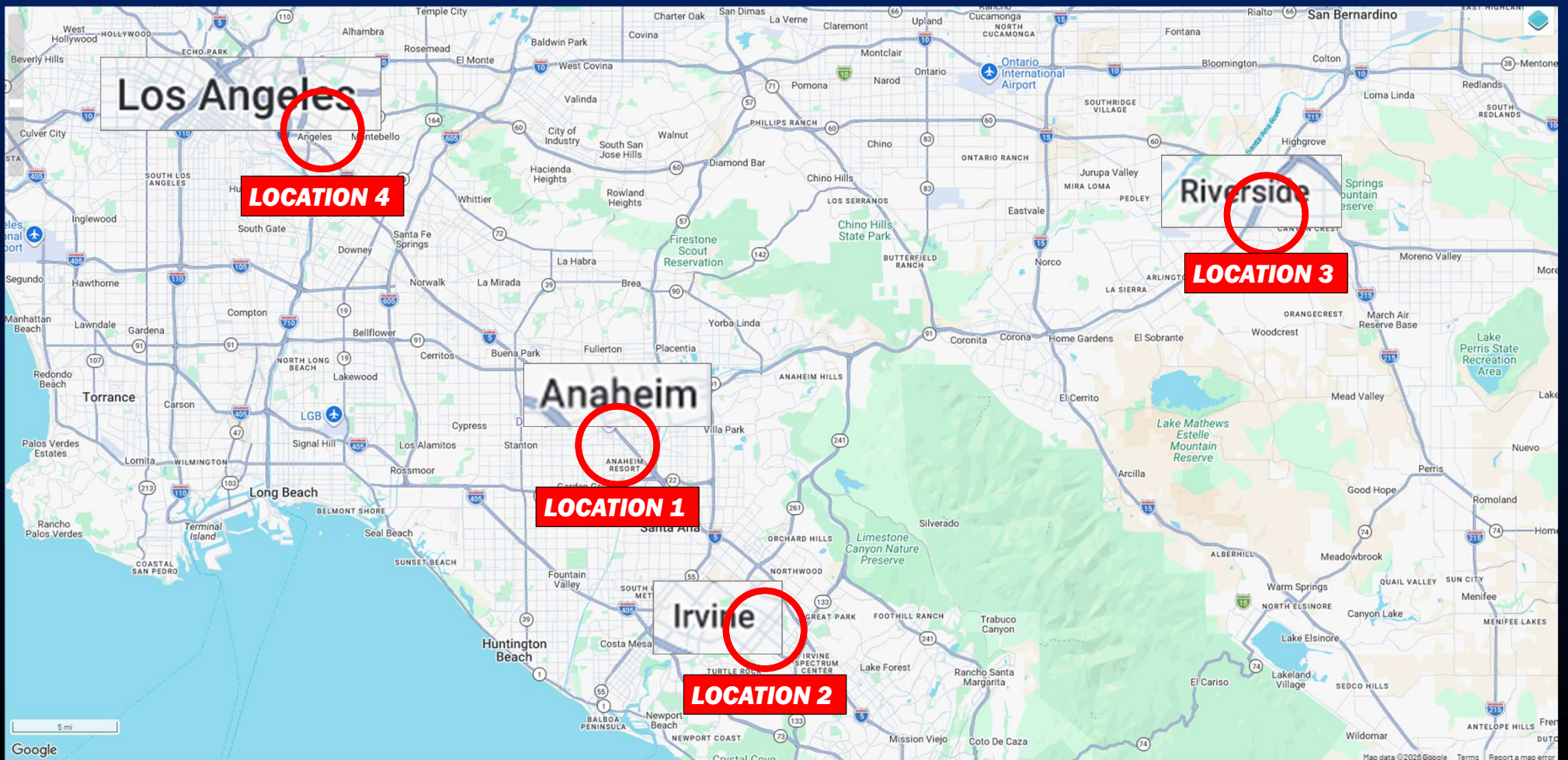
TOWER DUMPS



AREA SEARCHES



GEOFENCE SEARCH WARRANTS



...emerging investigative technique...

...controversial practice...

AN PUBLICATION OF THE LOS ANGELES COUNTY BAR ASSOCIATION

LACBA

PRIVACY AND CYBERSECURITY SECTION

...greatly enhances investigations...

Section Home Page
[click here >](#)

...but threatens to erode civil liberties...

**Digital Dragnet:
Geofence Warrants and their Constitutional Issues**

By: Devon Alan Frankel, *Pepperdine Law 2018 (J.D.), Loyola Law School 2020 (LLM)*,

...sweeping data collections from **people who are unlikely connected to the crime...**

Geofence warrants (also known as “reverse location search warrants”) are an emerging investigative technique used by law enforcement that compels technology companies holding device location data¹, such as Google, to deliver user information of devices present at a particular location during a time relevant to a crime. This controversial practice greatly enhances investigations but threatens to erode civil liberties by allowing sweeping cloud data collected to the crime. While courts debate the Fourth Amendment grounds, a clear policy has not been established, and the country is left wondering which of their data will receive constitutional protections against law enforcement, especially in the wake of the landmark *Carpenter* decision.²

...landmark *Carpenter* decision.

...a geofence warrant collects data...

Unlike traditional warrants that identify a suspect before a warrant is issued, a geofence warrant collects data associated with many devices in an area to discern possible unknown suspects.

...law enforcement agencies use a multi - step process...

particularity. In an attempt to cure these potential warrant defects, some law enforcement agencies use a multi-step process that compels tech companies to produce pseudonymized lists containing limited user account information

...to produce pseudonymized lists...

those lists, law enforcement agencies flag particular devices of interest and further compel

...containing limited user account information...

associated with those devices.” Defendants nationwide are challenging the validity of geofence warrants under the Fourth Amendment, including on the grounds that these pseudonymization methods are ineffective. For instance, *U.S. v. Chatrue* challenges the constitutionality of a geofence warrant used to obtain Google location

Pseudonymization - Definition

Pseudonymization is a data management procedure that replaces the information that can point to a subject's identity with “pseudonyms” or identifiers.

...rejected on issues of breadth and particularity...

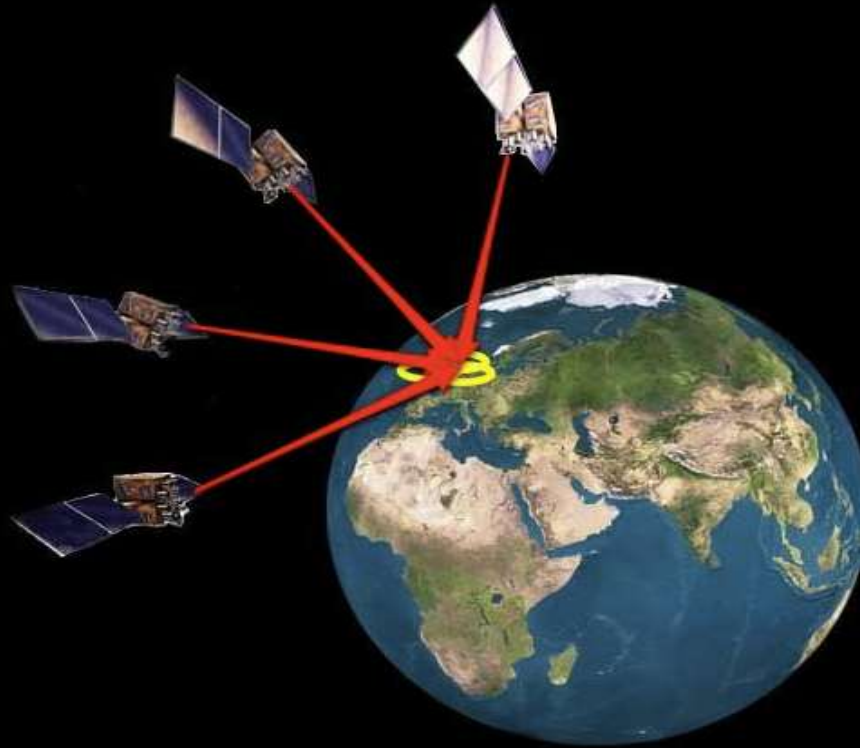
An Illinois district court recently unsealed two opinions that rejected a geofence warrant on similar issues of breadth and particularity.¹⁰ In *In re Search of Information Stored at*

...law enforcement sought... "all the data of the cellular telephones that accessed Google applications or used Google's operating system..."

location data on "all the data of the cellular telephones that accessed Google applications or used Google's operating system" at three locations in Chicago. In the second opinion, the Court noted "[the geofence warrant] is not 'narrowly tailored'"

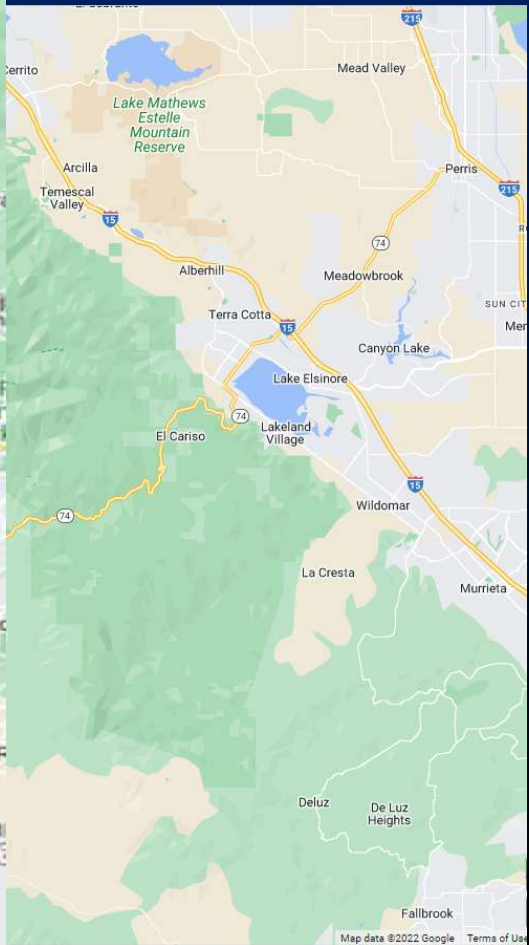
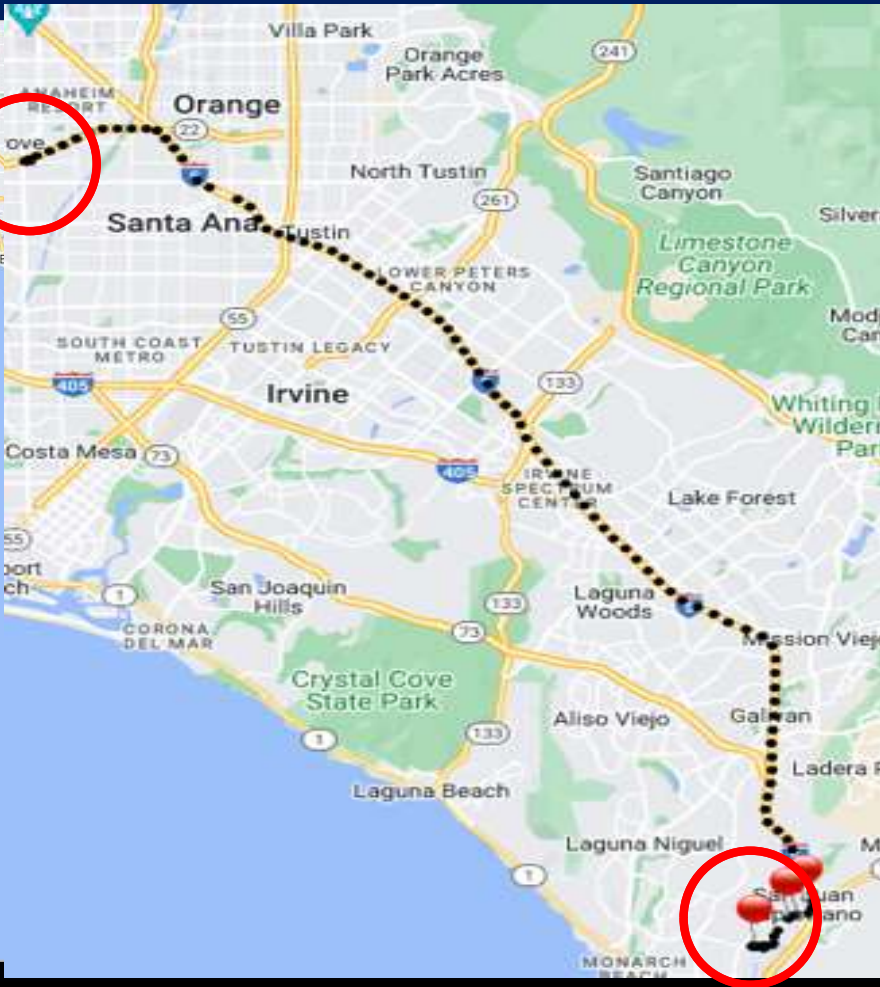
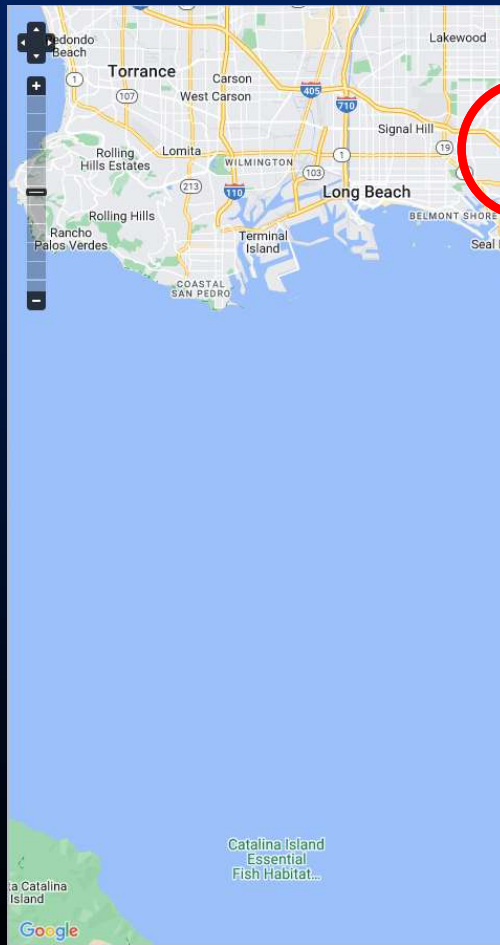
...not narrowly tailored...

...when the vast majority of the cellular phones likely to be identified in the geofence will have nothing whatsoever to do with the offense under investigation...



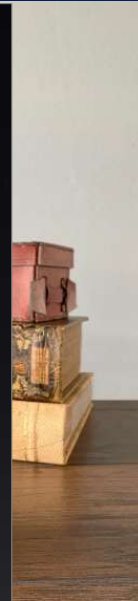
GLOBAL POSITIONING SYSTEM



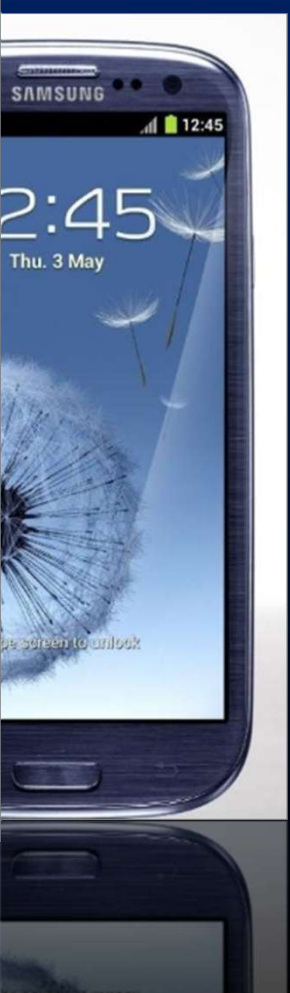


WHAT IS DIGITAL INFORMATION WORTH?





WHAT IS IT?





**Cellebrite
UFED**



**Cellebrite
PHYSICAL
ANALYZER**



**Cellebrite
READER**

**MAGNET
AXIOM™**



GRAYKEY

