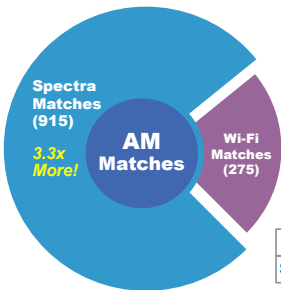


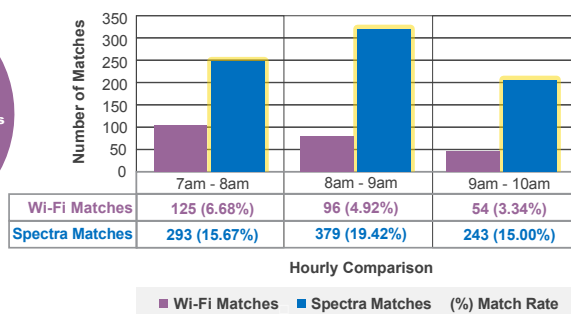


BlueTOAD[®] Spectra

The FACTS are in... The BlueTOAD Spectra Detector, combines **Discoverable** and **Non-Discoverable** Bluetooth to deliver **Most Samples – Most Matches – Most Advanced Travel-Time System!**

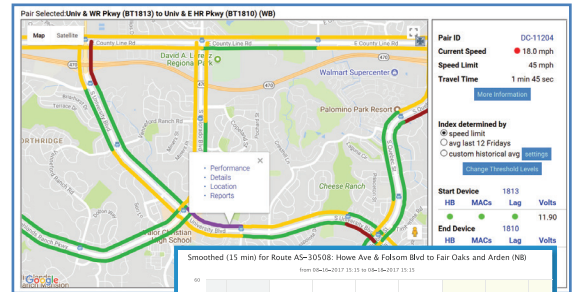


BlueTOAD Spectra vs. Wi-Fi - Matches (AM)



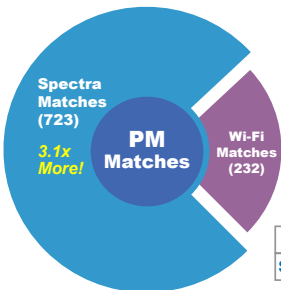
BlueTOAD Spectra & BlueARGUS Advanced Web-Based Software

Combine interactive, real time speed and congestion maps with automated Performance Measurement reports using NEW Scheduler!

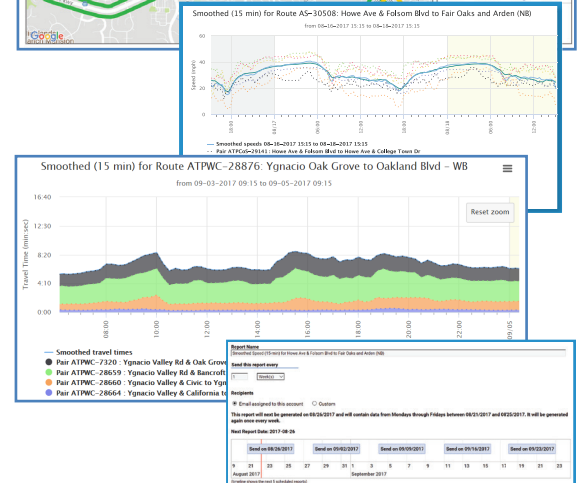
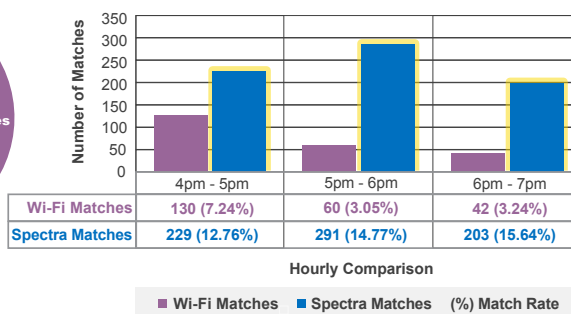


Compared to Wi-Fi, Spectra data is more robust...

Throughout the day, the total number of Spectra matches is significantly higher, compared to Wi-Fi matches – averaging 3X (300%) more matches.



BlueTOAD Spectra vs. Wi-Fi - Matches (PM)



BlueTOAD[®] is the most advanced traffic-monitoring system on the market, directly measuring travel times using cost-effective, non-intrusive roadside technology.

BlueTOAD Spectra Detector

Now, advancements have been developed to increase the number of Detects and Matches, introducing **BlueTOAD Spectra**, which enables detection of “Non-Discoverable” (Paired) segments of Bluetooth signals along side BlueTOAD’s industry leading detection of “Discoverable” (unpaired) Bluetooth devices. With the combination of discoverable and non-discoverable Bluetooth detection, testing has shown significant increases in detection and matches.

When a phone pairs up to a vehicle it is rendered “undiscoverable” and undetectable by a standard Bluetooth detector. However, BlueTOAD Spectra is able to detect that paired device adding significantly to detection density.

Spectra only detects 6 characters of the non-discoverable MAC address further enhancing privacy, not the usual 12 characters. With the number of States legislating use of “hands-free” mode, this new detector, coupled with the existing Bluetooth detector offers a greater amount of data, and significant increases in Origin/Destination metrics.

BlueARGUS — BlueTOAD Travel-Time-Based Performance Software

BlueARGUS is the most comprehensive database manipulation software, now optimized for travel-time data and dashboard-based visualization with BlueTOAD Spectra. Get richer insight to changing traffic patterns and trends. BlueARGUS/Spectra combined is optimized for any agency’s need - city traffic department, county, state, MPO or engineering service provider.

BlueTOAD Spectra



Technical Specifications

BlueTOAD Spectra Ethernet

Power Specifications

Power over Ethernet (PoE)
IEEE 802.3af standard
PoE Voltage: 48 VDC
110/230 VAC supply to injector

DC Power

DC Supply Current:
@ 12V - Typical 150 mA
@ 12V - Maximum 250 mA
DC Supply Voltage: Minimum - 9.5 VDC
Maximum - 50 VDC

AC Power

100/230 VAC 50 Hz to 60 Hz

Operating Range

-40° C to +85° C

Processor

Real Time Microcontroller
8GB Removable microSD Card

Connectivity

PoE - Ethernet 10 BASE-T / 100 BASE-T
Static or DHCP IP Addressing
(Only one Ethernet connection needed per unit)

Bluetooth

Non-Discoverable 2.4 GHz Demodulator
Discoverable CSR Bluecore 4 Class 1

Bluetooth Radio (adjustable) Transmit Power Range: -90 dBm to +20 dBm

Antennae

Bluetooth: (2) - 2 dBi Omni

NEMA 4X Enclosure

10 in. x 3.0 in. x 3.0 in.
Weight: < 5 lbs.

BlueTOAD Spectra Cellular

Power Specifications

Solar Power SOW, 17.5 Vmp
Solar: 33 in x 21 in x 2 in, Weight: 17.3 lbs.
Solar Power 85 W, 17.9 Vmp
Solar: 47 in x 21 in x 2 in, Weight: 17.6 lbs.
Battery: 60/20 Ah Gel Sealed

DC Power

DC Supply Current:
@ 12V - Typical 250 mA
@ 12V - Maximum 500 mA
DC Supply Voltage: Minimum - 9.5 VDC
Maximum - 50 VDC

Power over Ethernet (PoE)

IEEE 802.3af standard
PoE Voltage: 48 VDC
110/230 VAC supply to injector

AC Power

100/230 VAC 50 Hz to 60 Hz

Operating Range

-40° C to +85° C

Processor

Real Time Microcontroller
8GB Removable microSD Card

Connectivity

4G LTE CAT4
Supports all legacy non-4G technologies

Bluetooth

Non-Discoverable 2.4 GHz Demodulator
Discoverable CSR Bluecore 4 Class 1

Bluetooth Radio (adjustable) Transmit Power Range: -90 dBm to +20 dBm

Antennae

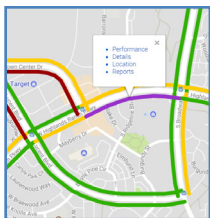
Bluetooth: (2) - 2 dBi Omni
LTE: MIMO Receive Diversity
GPS: Passive Ceramic

NEMA 4X Enclosure

12.14 in x 10.26 in x 7.15 in
Weight (with battery & mounting brackets):
48 lbs.

Interactive, Real Time Speed Maps & XML

The BlueARGUS system provides an interactive and real-time speed map that allows the user to quickly access every link and all the corresponding information, such as travel-time, average speed and 48-hour performance graph. The real-time map can be viewed independently of the software via an encrypted link that the user can view the data compared to the speed limit or historical average to quickly see if there is reoccurring or non-reoccurring congestion - a great operational tool!



Travel Time Reliability Study #1

Study Range: 10/1/2017 to 10/1/2017

Study Day: Monday

Study Time: 10:00 to 10:00 every day grouped by Day of Week (100% percent)

Travel Time Reliability Study #2

Study Range: 10/1/2017 to 10/1/2017

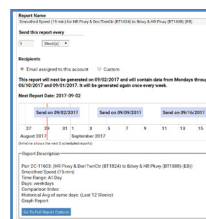
Study Day: Monday

Study Time: 10:00 to 10:00 every day grouped by Day of Week (100% percent)

Direction	10/1/2017	10/2/2017	10/3/2017	10/4/2017	10/5/2017
North	1:29 (12.1)	0:22 (2.3)	1:00 (14.3)	1:00 (14.3)	1:00 (14.3)
East	1:12 (10.2)	0:22 (2.3)	1:00 (14.3)	1:00 (14.3)	1:00 (14.3)
West	1:00 (14.3)	0:22 (2.3)	1:00 (14.3)	1:00 (14.3)	1:00 (14.3)
South	1:00 (14.3)	0:22 (2.3)	1:00 (14.3)	1:00 (14.3)	1:00 (14.3)

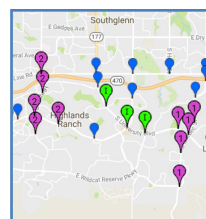
Travel Time Reliability

TTR measures the travel-time index (TTI), buffer-time index (BTI) and planning-time index (PTI) of a driver's travel to best show the variability in their commute. In addition to average travel-time, TTR is a great performance tool that can be measured weekly, monthly, quarterly and/or annually by time of day and day of week.



Report Scheduler and Historical Reporting

With the use of historical reports, the user can aggregate and compare data in virtually any combination of days, weeks, months or years. This is an extremely beneficial tool to measure the before and after travel-times of a new traffic signal software, the impact of a special event or incident or seasonal effects on travel-times and speeds. Now, the user can automate ALL performance measurement Reports with the NEW Report Scheduler.



Enhanced Origin & Destination Studies

With the Origin & Destination Studies created in BlueARGUS users are able to determine the amount of through movements for a study area (Zones) or corridor, and monitor prevailing traffic patterns to assist on decisions related to route planning and congestion mitigation. With the new O/D Reports, a user can create as many traffic routes and zones as they wish, to compare number of matches and review trip details.