



BlueTOAD® Spectra™ CV

C-V2X Roadside Unit (RSU)

Combine travel time analytics with vehicle-to-infrastructure applications



Integrated Data Delivery

Merges travel time and connected vehicle data



Foundation for V2X Applications

Supports a comprehensive suite of V2X applications, including signal priority and preemption



Monitoring and Reliability

VantageARGUS CV™ oversees RSU health and system reliability

Integrated Traffic Management in One Unit

The BlueTOAD Spectra CV and VantageARGUS CV solution combine travel-time and connected vehicle (CV) data management in a single roadside unit (RSU). This integration supports a comprehensive suite of travel time and origin/destination reporting utilities, leveraging data from various CV applications. The unit utilizes the 5.9 GHz (LTE-V2X) standard to handle signal request messages (SRM), basic safety messages (BSM), and traveler information messages (TIM), managing multiple simultaneous priority requests. This enables a full range of vehicle-to-everything (V2X) signal priority, pedestrian safety, and emergency vehicle preemption applications, including:

- Intelligent Signal Timing applications
- Emergency Vehicle Preemption
- Freight Signal Priority
- Transit Signal Priority and mobility efficiency
- Pedestrian and Bicycle mobility and safety
- Data collection, management, and analytics
- Enhanced roadside sensor capabilities

Connectivity and Immediate ROI

By integrating Bluetooth® (2.4 GHz) and LTE-V2X (5.9 GHz) technologies, the BlueTOAD Spectra CV RSU connects mobile devices and connected vehicles to Iteris' data collection and analysis platform – VantageARGUS CV – providing ROI from day one.



Certification
Pending



This unit facilitates essential V2X interconnectivity for safety and mobility applications in CV initiatives while synchronizing with transportation agency travel time and performance measures systems.

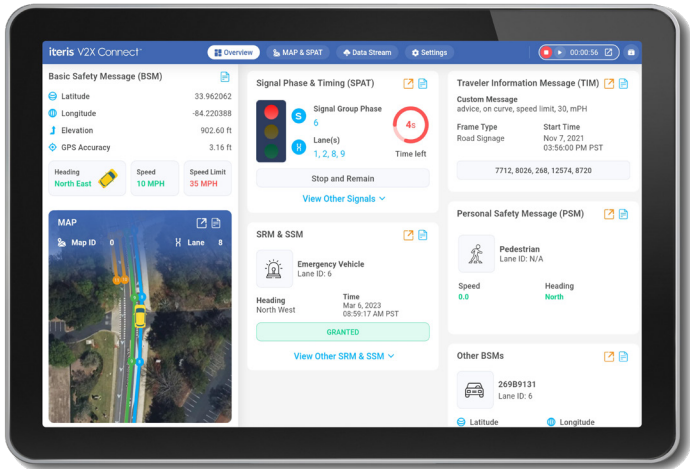
With extensive experience in deploying and maintaining roadside technology, Iteris, through its VantageARGUS CV web-based analytics software, offers a versatile V2I roadside application platform supporting a variety of CV applications.

VantageARGUS CV is tailored for travel-time and V2X data visualization, using both discoverable and non-discoverable Bluetooth detection, along with V2X data aggregation management and managementRSU monitoring. This integrated safety and mobility traffic monitoring system allows city traffic departments, counties, states, MPOs, and engineering service providers to achieve immediate ROI on their CV initiatives.

Iteris V2X Connect™ Tablet App

The BlueTOAD Spectra CV RSU connects with the Iteris V2X Connect app and Iteris' VantageARGUS CV analytics software platform, offering:

- Real-time verification of SAE J2735 (2024+) V2X messages
- Validation tools for SAE J2735, IEEE 1609.2/3, and Connected Transportation Interoperability (CTI 4501/4502)
- SPaT/MAP status display and validation.
- Highly accurate location-based services to ensure deployment meets agency requirements
- On-board unit (OBU) and RSU CV data capture, management, and analytics



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Specifications

BLUETOAD SPECTRA CV (LTE-V2X) RSU

(Bluetooth- 2.4 GHz and Cellular (LTE) Vehicle to Everything- 5.9 GHz)

Core Features	U.S. (IEEE, SAE) protocols
	V2X Facilities Software (SAE protocols)
	V2X Services API (GNSS, V2X Radio)
	Quad-core ARM A35 @ 1.2GHz + M4 (~9000DMIPS)
	2 GB LPDDR4 SDRAM
	256 MB QSPI NOR flash
	8 GB eMMC mass storage
	LTE-V2X R14/15 radio
	GNSS for position and timing
	USB 3.0 (Type-C)
	USB 2.0 Debug (microB)
Connected Vehicle Standards Conformance	
	EEE 1609
	SAE J2735
	SAE J2945/1
	SAE J3161/1
	NTCIP 1218 v01.38
	SLSS aware
Frequency Band	LTE-V2X: 5.9GHz ITS (5895 – 5925 MHz)
	GNSS: L1 C/A, L10F, B1, B1I, E1/BC, G1
Security	Developed in compliance with ISO 21434 cyber security standard
	V2X Hardware Security module (HSM)
	NIST/Brain pool ECC up to 512b
	HSM storage > 10k keys, 15-year retention
	FIPS 140-2 Level 3 / EAL6+
	Integrated Firewall
	Secure Boot
Bandwidth	LTE-V2X: 20MHz, IEEE Ch. 183
Antenna Diversity Transmit Power	LTE-V2X: RX Diversity (MRC), TX Diversity (CDD) Max
	LTE-V2X: Up to +23 dBm
Receiver Sensitivity (single input)	
	LTE-V2X target: -95dBm
	(MCS 11, 367 octets, HARQ)
GNSS	2.0m CEP (up to 10Hz)
V2X Security	NIST/Brainpool ECC up to 512b
	HSM storage > 10k keys, 15-year retention
	FIPS 140-2 Level 3 / EAL6+
Operating System	Embedded Linux
Operating Temperature Range	
	-40°C to +85°C (PCBA)
V2X Printed Circuit Board Assembly (PCBA) Power Supply	
	12V ±10% (< 12 Watts)
BLUETOAD SPECTRA SPECIFICATIONS	
Power	Power over Ethernet (PoE) IEEE 802.3af standard
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
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
PoE Voltage	48 VDC 110/230 VAC supply to injector
Enclosure	Aluminum Die-Cast Enclosure
Dimensions	10.7" x 9.7" x 3.5"
Weight	< 10 lbs.