



## ***ASTRO® 25 LOCATION TRACKING SOLUTIONS***

Enhance Personnel Safety and Fleet Security.  
Improve Resource Allocation and Responsiveness.

To meet your needs Motorola is offering two distinctive Location Tracking Solutions utilizing the ASTRO® 25 Integrated Voice & Data system.

**Personnel Location Tracking Solution** allows for the tracking of XTS™ 5000 portable radios equipped with a GPS Remote Speaker Microphone.

**Outdoor Location Solution** allows you to track both portable and mobile radios by utilizing the XTS 5000 portable equipped with a GPS remote speaker mic plus the XTL 5000, XTL 2500, XTL 1500, or ASTRO Spectra Plus mobile radios connected to the Cellocator™ Olympic GPS device, specially designed for ASTRO 25 networks.

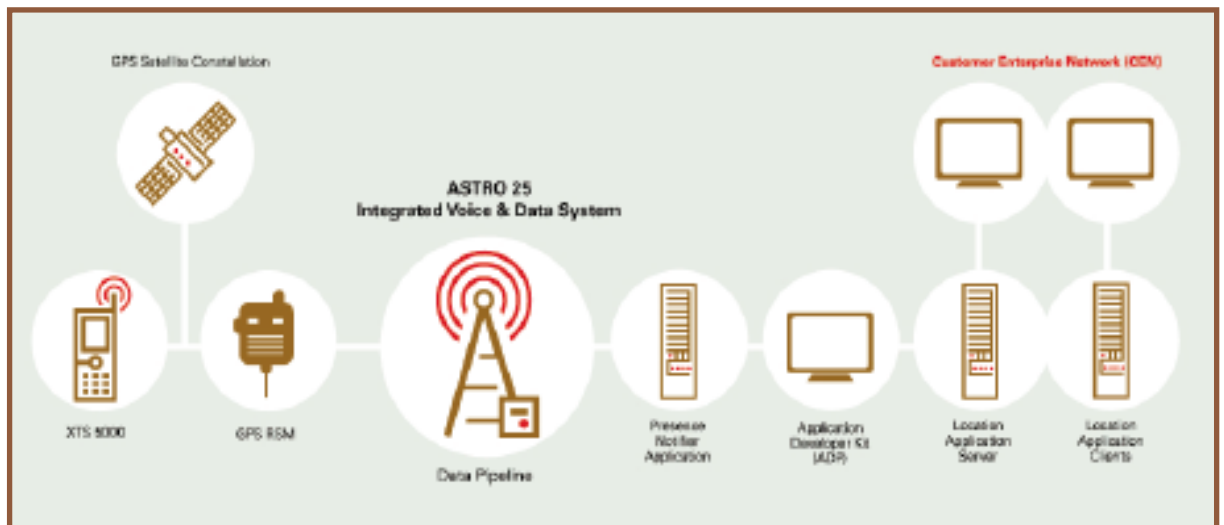
First Responders face many safety and security challenges during a mission critical situation. Location solutions are essential to helping ensure safety, security and appropriate resource allocation.

For public safety agencies who need to know the location of officers and vehicles at all times, the ASTRO 25 Location Tracking Solution is a resource tracking tool that uses Global Positioning System (GPS) satellites to provide operators with the ability to locate and track outdoor personnel and assets in near real time. Unlike public network solutions, Motorola allows customers to further utilize their ASTRO 25 Integrated Voice and Data (IV&D) system to enhance officer safety and increase their operational efficiencies.

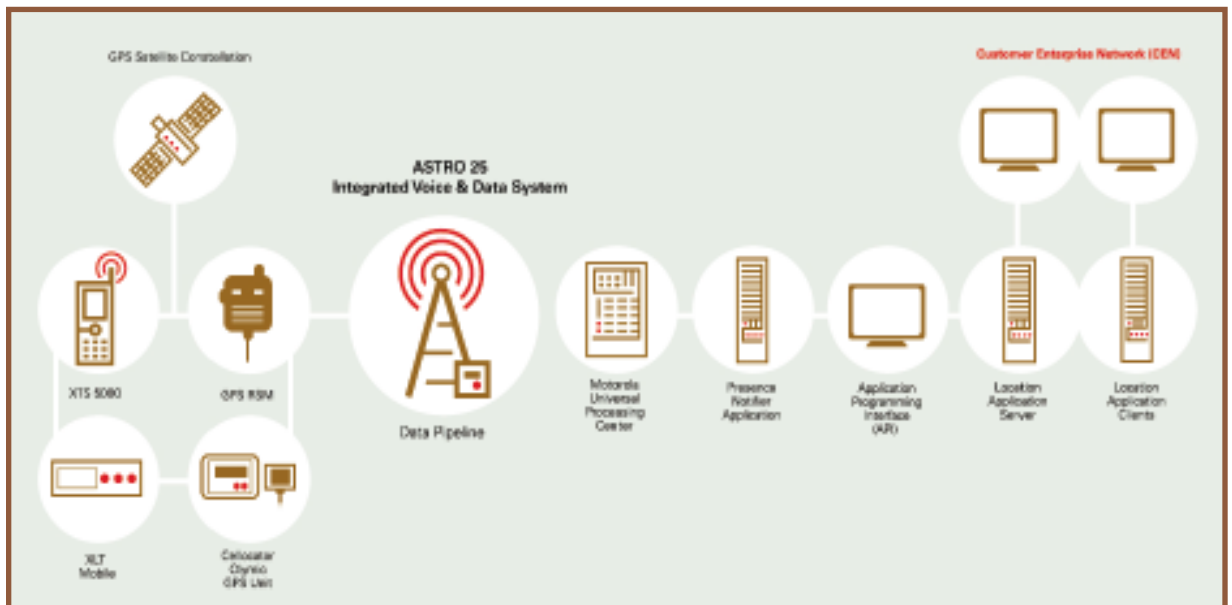
Officers, dispatchers, and commanders can track the locations of vehicles and personnel, boosting situational awareness, allowing them to dispatch the nearest unit for quick response and enabling them to quickly find and assist distressed mobile units or individual personnel.

The Location Tracking Solution utilizes GPS technology to provide dispatch operators with the invaluable tool to monitor and locate personnel who operate outdoors.

**PERSONNEL LOCATION TRACKING SOLUTION – USING PORTABLE RADIOS**



**OUTDOOR LOCATION SOLUTION – USING PORTABLE AND MOBILE RADIOS**



	<b>Personnel Location Tracking Solution</b>	<b>Outdoor Location Solution</b>	<b>Capability</b>	<b>Description</b>
1	✓	✓	ASTRO 25 Integrated Voice & Data (IV&D) System	Solution utilizes GPS technology and is designed to work on ASTRO 25 IV&D system architecture
2	✓	✓	ASTRO 25 XTS 5000 portable radios with GPS Remote Speaker Microphone (RSM)	<p>The XTS 5000 two-way portable radio is an integrated voice and data device. It sends GPS location information through the Motorola Location Request / Response Protocol (LRRP) software.</p> <p>The GPS Remote Speaker Microphone (RSM) houses the GPS intelligence. It sends location information to the radio user and the dispatch operator.</p>
3		✓	GPS Enabled ASTRO 25 XTL 5000, XTL 2500, XTL 1500, or ASTRO Spectra Plus mobile radios with Cellocator™ Olympic for ASTRO 25	<p>The two-way mobile radios also act as a voice communications device as well as the data communications device.</p> <p>The Cellocator™ Olympic for ASTRO GPS unit provides both GPS location and telemetry data. With five digital sensor inputs, including ignition on/off plus 4 variable inputs and an analog input to monitor the vehicle battery, the unit provides the ability for event-based reporting in your application.</p>
4	✓	✓	ASTRO 25 Presence Notifier Application	Provides the presence and absence information of subscriber radios to any compatible data application located in the CEN. It interfaces with data applications and subscriber radios using User Datagram Protocol / Internet Protocol (UDP/IP).
5		✓	ASTRO 25 Motorola Universal Processing Server (MUPS)	Acts as a gateway for the location, telemetry, and presence information from the ASTRO 25 radios and transfers data to back office applications. Additionally it routes requests and commands from the back office application to the devices.
6		✓	ASTRO Location Application Programming Interface (API)	Contains all the necessary interface documentation that a third party application developer needs to receive location, telemetry, and presence data from the Motorola Universal Processing Server. The API pushes data messages containing this information in near real time to the third-party application and allows support for remote commands through a set of messages that can be sent to the mobile units.
7	✓		ASTRO Location Application Developer Kit (ADK)	The ASTRO 25 Location Application Developer's Kit contains the interface documentation for a third party developer to receive location data from the ASTRO 25 radios operating on the ASTRO 25 Integrated Voice and Data System.

## ***Over 65 Years of Understanding the Needs of Public Safety***

In today's world, you need a solutions provider that understands what Mission Critical is all about: the lives and well-being of your employees and the citizens they protect. That's why Motorola is a leading provider of interoperable communication systems for public safety, first responders and government agencies. Our experience, along with our skills, people, partnerships and alliances, allow us to build innovative, fully integrated technologies that let organizations like yours share vital information with ease and confidence. We've been doing it for over 65 years, and we'll be standing by our customers for years to come.

# Choose the Solution That is Right for Your Organization.

## PERSONNEL LOCATION TRACKING SOLUTION ALLOWS YOU TO KEEP TRACK OF YOUR OFFICERS WHEN USING PORTABLE RADIOS

The Personnel Location Tracking Solution utilizes the XTS 5000 radio and a GPS Remote Speaker Microphone.

### Features

- 16-position channel selector knob
- Emergency button
- 2 Programmable buttons
- Full-range volume control
- Fully submersible housing\*
- Display GPS position updates on the XTS 5000 portable radio (Model II and III)

The dispatcher receives GPS position update when the radio user initiated, location request upon radio power-on, emergency alarm location request or emergency push-to-talk location request. In addition the dispatcher can initiate GPS position update by: location polling, periodic location request or distance-based location request.

### Remote Speaker Mic GPS Specs

Simultaneous Satellites	12
Mode of Operation	Autonomous (Non-Assisted) GPS
GPS Antenna	PIFA style antenna integrated into GPS RSM
Sensitivity	-138dBm
Accuracy	15 meter (50%): 25 meter (95%)
Cold Start	< 90 seconds
Warm Start	< 40 seconds
Hot Start	2-4 seconds
Periodic Update	Information Age Typical 20-45 Seconds



## OUTDOOR LOCATION SOLUTION PROVIDES FLEXIBILITY TO LOCATE BOTH MOBILE AND PORTABLE UNITS IN YOUR SYSTEM

The Outdoor Location Solution allows you to keep track of your organization whether they are in a mobile vehicle or outside the mobile vehicle using a portable radio.

Motorola is working with Cellocator, Ltd. to provide a complete mobile solution. This solution allows the flexibility of connecting the Motorola ASTRO 25 XTL family of radios or the ASTRO Spectra Plus to the Cellocator Olympic for ASTRO GPS and telemetry unit, featuring:

- Small size for covert installation detection and low power consumption
- Reliable Communication
- Integrated GPS technology ensures efficient and accurate vehicle location
- Over-the-Air (OTA) configuration allows operators or users to remotely change the interval at which the location is being reported
- Multiple Discrete Input / Output options allows the system to monitor ignition on/off plus up to four discrete digital sensors such as door, hood, oil pressure, or collision impact sensors plus two discrete open collector outputs such as sirens and lights.

### Cellocator Olympic for GPS Specifications for ASTRO mobile radios

Outputs	2 open collector outputs up to 500 mA	Simultaneous Satellites	up to 20
Inputs	5 variable inputs – 1 for ignition, 4 for general purpose 1 analog input dedicated for battery measurement	Mode of Operation	Autonomous (Non-Assisted) GPS
Communication method	UDP/IP over ASTRO	Sensitivity	-130dBm
GPS Technology	SIRFstarIII	Accuracy	10 meters at 2D RMS
	20 receiving channels	Cold Start	42 seconds
Other interfaces	RS232 (9600bps)	Warm Start	35 seconds
Operating voltage	9-32v	Hot Start	1 second
Power consumption	0.98W in full operation, 0.327W in hibernation		
Dimensions	77.6mm x 106mm x 28.15mm		
Weight	0.315kg		
Temperature Range	-20°C to +55°C		

\* Housing is fully submersible when used with a Ruggedized XTS 5000 radio.  
The Remote speaker head is submersible when used with a standard XTS 5000 radio model.



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