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803 VHF/UHF/SHF DF Subsystem

The TCI Model 803 is a compact Direction Finding (DF) subsystem for Communications Intelligence (COMINT) and Electronic Warfare (EW) applications. The 803 integrates seamlessly with TCI's Blackbird NextGen COMINT / EW platform to provide a complete signal search, collection, direction finding and geolocation solution.

The 803 continuously scans, detects, DFs, and records DF results in tasked frequency channels on a 4 or 40 MHz instantaneous bandwidth. Bandwidth is tuneable over the 20 to 3,000 or 20 to 8,000 MHz frequency ranges. The dual 40/4 MHz wideband DF capability enables the Model 803 to detect and capture weak signals in crowded RF environments using the 4 MHz instantaneous bandwidth and detect short-duration, frequency-agile and wide-bandwidth signals using the 40 MHz bandwidth.

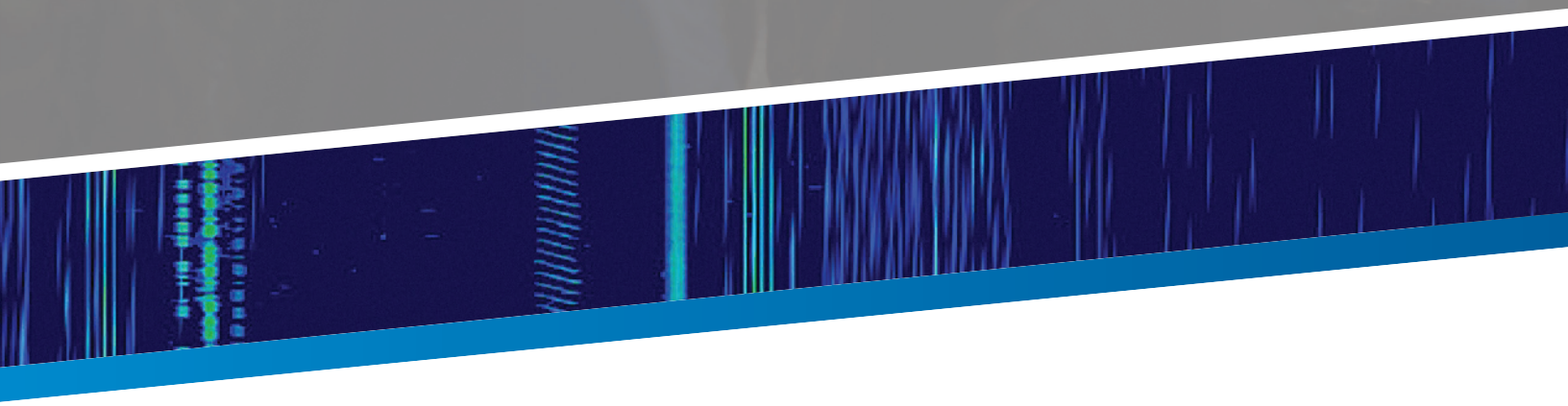
The 803 is available with any of TCI's single-band VHF/UHF/SHF monitor and DF antennas. Antenna options include the Model 641 for high-accuracy DF on vertically polarized signals in fixed and mobile applications, the compact, low-profile Model 645 for mobile and transportable applications from 20 MHz to 3,000 MHz. For higher frequencies, the Model 803 can use the Model 647 antenna, the first antenna to provide high-accuracy DF on vertically polarized signals in fixed and mobile applications from 20 MHz to 8 GHz.

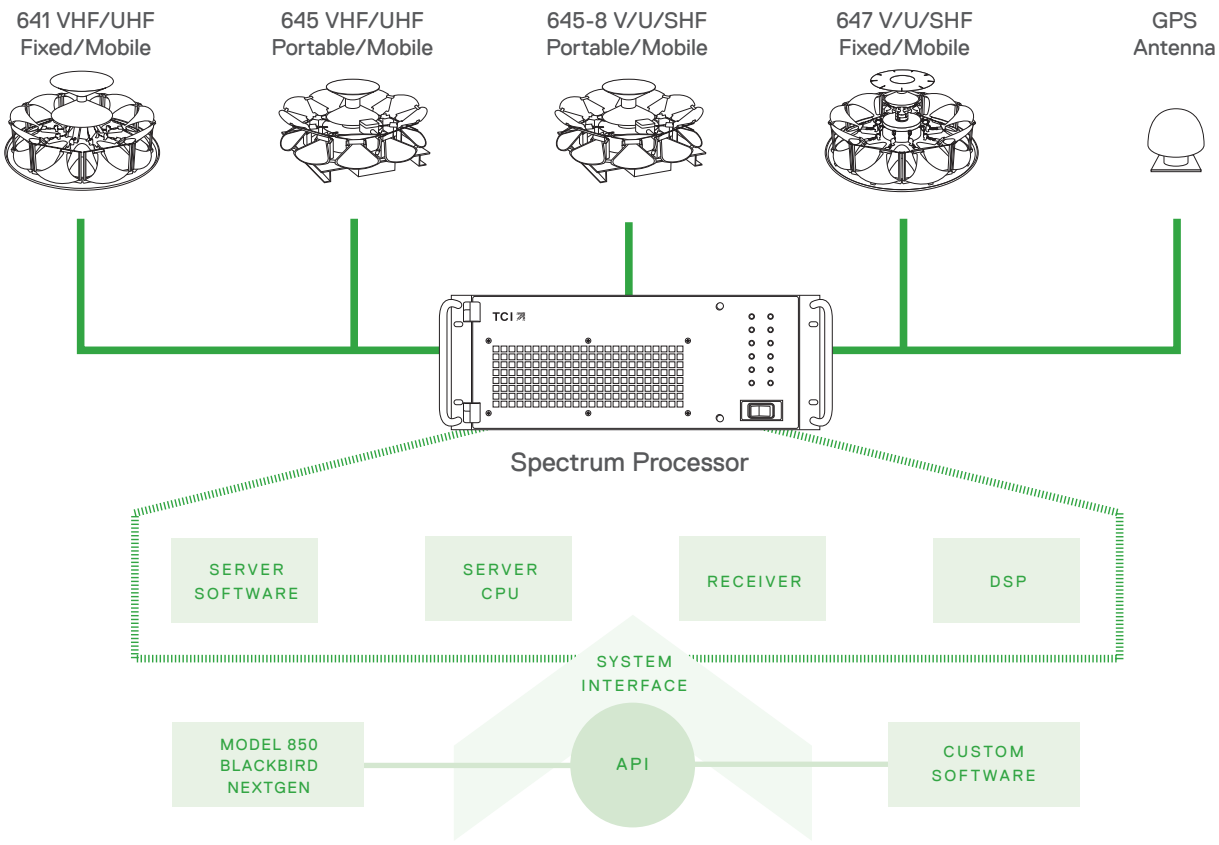
Integrated hardware and software coupled with modern DSP provide multi-mission support for COMINT and range operations. TCI's wideband, multi-channel architecture provides accurate DF performance in complex signal environments. Multiple 803 units can also be networked together for triangulation. In addition, a mobile 803 system can perform TCI's homing DF to track down signals of interest.

Intercept and locate signals with a compact, fully integrated solution.

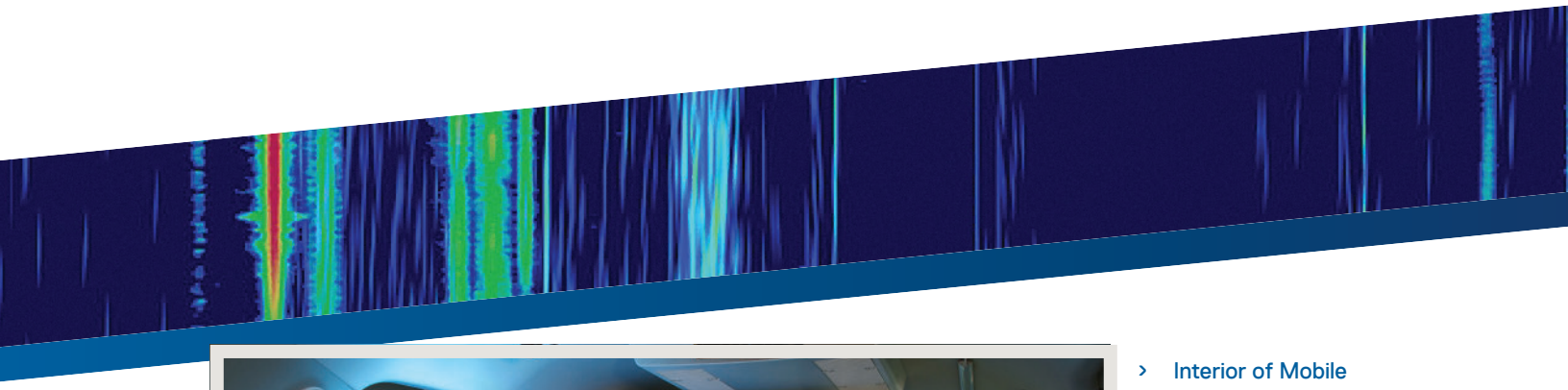
KEY FEATURES

- Comprehensive intercept and location of all signals from 20 to 3,000 MHz or 20 to 8,000 MHz.
- 3 GHz/sec fast-scanning detection with simultaneous DF of all detected signals at frequency channelization of 25 kHz (DF First™ technology).
- Multi-mission support using fi eld-proven DF algorithms.
- Detection and DF of multiple modern signals, such as frequency hopping, agile and burst signals.
- Supports multiple signal types simultaneously.
- Flexible, modular hardware architecture supports fi xed, mobile, and transportable configurations.
- DF results available in real-time and recorded for later analysis.
- Effective support of both frequency control/clearing and frequency scanning phases.
- Selectable wideband 4 or 40 MHz (VHF/UHF/SHF) instantaneous bandwidth.
- Choice of multiple VHF/UHF/SHF direction fi nding and monitor antennas.
- Rugged design minimizes size, weight, and power consumption.
- Built-in self-test and calibration.
- Integrates seamlessly with the TCI Model 850 Blackbird NextGen COMINT/EW platform.
- Application Programming Interface (API) for control and output to local/remote TCP/IP control systems.





Modular Architecture For Maximum Flexibility



› Interior of Mobile station with with covert TCI Model 645 antenna mounted on a civilian vehicle.

Antennas For Every Application

Depending on the requirements, the TCI 803 subsystem is easily configurable to operate with several types of monitor & DF antenna types. Available antenna models include:

- V/UHF: TCI Models 641 or 645 DF and monitoring antennas
- V/U/SHF: TCI Model 645-8 and 647 monitoring antennas

All of the antenna arrays provide:

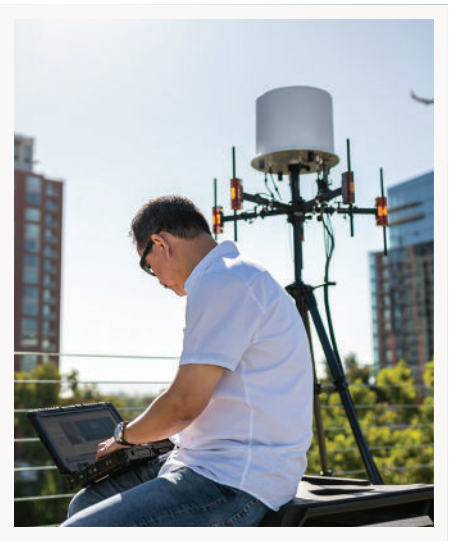
- Fast, accurate, wide-aperture, multi-element, direction finding antennas and sensitive omni-directional monitoring antenna.

V/U/SHF antenna arrays additionally provide:

- 20 to 3,000 MHz or 20 to 8,000 MHz coverage in a single antenna package.
- BIST (Built-in Self Test Equipment) for automatic end-to-end testing & verification of the operational status of the system.

› TCI antenna in radome

› The Model 803 can be provisioned with a choice of DF and Monitoring antennas in fixed, mobile and transportable configurations that support multiple COMINT, ISR, Spectrum Monitoring and Range management operations



TCI Model 641 Antenna Array

Overall best sensitivity and accuracy over a wide variety of applications in a single antenna package for the 20 to 3,000 MHz range.

TCI Model 645 Antenna Array

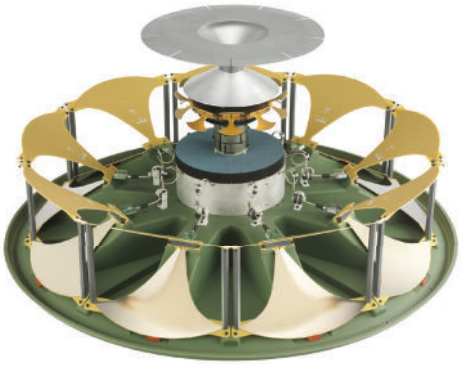
Provides 20 to 3,000 MHz coverage in either a small radome or a covert package when size, weight, and covert operation are important.

TCI Model 645-8 Antenna Array

Moves the DF and monitoring frequency range up to V/U/SHF, while providing full 20 to 8,000 MHz coverage in covert antenna package.

TCI Model 647 Antenna

Moves the DF and monitoring frequency range up to an industry-first 8,000 MHz, providing full 20 to 8,000 MHz coverage in a single antenna package.



Flexible Operations

The TCI Model 803 DF Subsystem supports a wide range of operational capabilities, including:

Wideband Scanning Detection with Simultaneous DF

Detects and simultaneously DFs all signals in the bands of interest using fast-stepping wideband reception combined with DSP-based fine frequency channelization.

Modern Signal Detection and DF

Provides interlinked, fast-scanning detection/ DF capabilities, enable real-time and post facto detection and DF of modern signals, including frequency-hopping signals.

DF History

Stores DF results in a high-speed database, allowing query of past results. Any station can merge data sets from multiple stations, providing full post-facto triangulation and geolocation of signals of interest.

Seamless Integration with TCI's Blackbird NextGen COMINT/EW Platform

The Model 803 DF Subsystem can be combined with the TCI Model 850 Blackbird Nextgen to deliver a complete solution that provides unparalleled signal survey, search, detection, DF, geolocation, visualization, collection, wideband recording, analysis and reporting. All with the advantage of Blackbird's intuitive, push-button simplicity.

Easy to program Application User Interface (API)

An API is available for the Model 803, allowing integrators to control and obtain data results from the DF subsystem. Included with the API is a fully functional test client application which demonstrates API usage. TCI provides the source code for the test client application as a guide for programmers to write their own interface. This has been found by customers to be an invaluable asset for quick and easy system integration.

Model 803 Specifications

PARAMETER	VALUE	VALUE	COMMENTS
Frequency Range			
Frequency Range	20 to 3,000 MHz	20 to 8,000 MHz	
Modulation Modes (DF)	–––		All
DF Bandwidth	6.25 to 200 kHz	6.25 to 200 kHz	Many intermediate values
Instrument DF Accuracy	0.1º RMS	0.1º RMS	
System Accuracy	2º RMS	2º RMS	1º in a reflection-free environment
DF System Sensitivity	10 dB		SNR, 25kHz BW
Polarization			Vertical and Dual Vertical / Horiz.
DF Scan Rate	3 GHz/sec	3 GHz/sec	25 kHz Channels
Spectrum Processor			
Architecture			Modular
Configuration			Dual Channel receiver
Operating System			Windows® 7 embedded
Receiver			
Tuning Speed	3 ms		<100 MHz steps
Tuning Increments	1 Hz		
Gain Control	120 dB		Digital range
IF Bandwidths	40/4 MHz		3dB
Image Rejection	90 dB		
IF Rejection	80 dB		90 dB Typical
In-Band Dynamic Range	80 dB		
3rd-Order Intercept point	+18 dBm		Urban mode
2nd-Order Intercept point	+50 dBm		
Noise Figure	Antenna dependent		See antenna data sheets
LO Phase Noise	-110 dBc/hz		10 kHz offset
Environmental (Electronics only)			
Temperature	0 to 45º C		Operating
Temperature	-40 to 70º C		Storage
Altitude	3,000 m		Operating (10,000 ft)
Altitude	15,000 m		Storage (50,000 ft)
Operating Humidity	0-95 %		Non-Condensing
Power	115/230 VAC		
Power	250 W		Max.

Specifications subject to change without notification.

Export of TCI International, Inc. systems and products may be subject to U.S. export controls. U.S. Export License may be required.

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Enabling Partners to Master the Spectrum

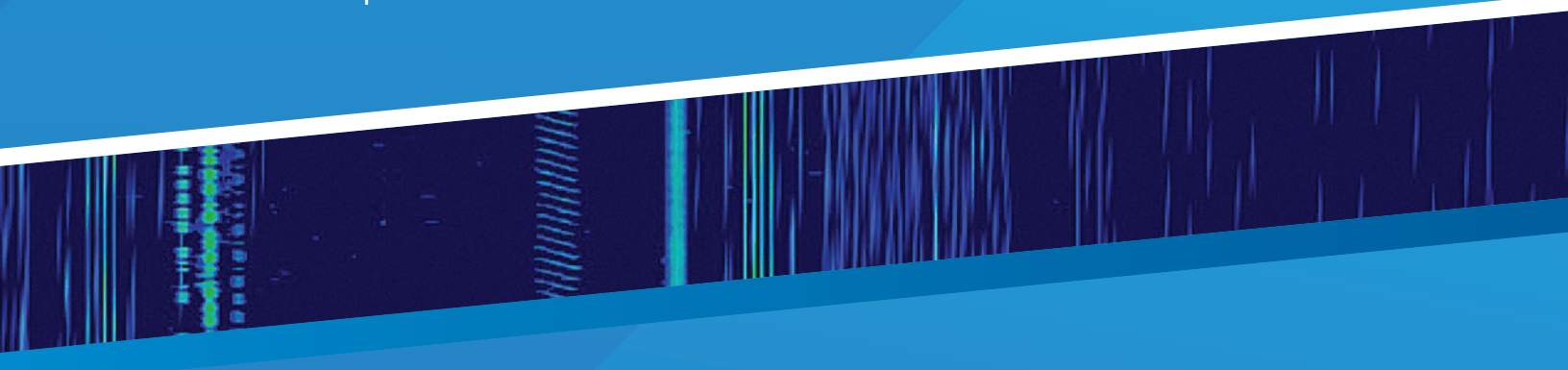
TCI International, Inc. is a global supplier of turnkey solutions for Communications Intelligence (COMINT), ITU-compliant spectrum monitoring & management, direction finding and geolocation, and antennas for communications and high-power radio broadcasting. TCI systems and solutions have been delivered to national defense departments, intelligence agencies, law enforcement bureaus, and spectrum regulators in more than 100 countries.

With advanced spectrum mapping, analytics, data recording, and precision geolocation technology, TCI systems provide solutions for force protection, border security, radio signals intelligence, communication traffic monitoring, and regulatory compliance.

For over 50 years, TCI's technical developments and engineering expertise have earned it a reputation for excellence and innovation supporting an array of customers whose missions depend on having a clear picture of their electromagnetic environment.

Based in Fremont, California, TCI is a wholly-owned subsidiary of SPX Corporation (NYSE: SPXC), a diversified, global supplier of highly-engineered systems for detection & measurement, and products for environmental control. With employees in over 15 countries, SPX team members collaborate across borders and business segments to deliver greater efficiencies and better ideas that help our customers succeed.

TCI delivers specialized expertise in a global family. Learn more about TCI at www.tcibr.com, and SPX at www.spx.com.



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