

# ACHIEVE MORE WITH YOUR RADIO NETWORK





— TAIT TRUNKED DMR —

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## TAIT DMR TIER 3 EMPOWERS YOUR ORGANIZATION

Because trunked DMR Tier 3 can carry both voice and data, there are countless opportunities and smart applications that will improve productivity and lower costs around your business.



Tait DMR Tier 3 is a digital communications platform that delivers workforce efficiencies and operational benefits for mission critical users. Many digital radio technologies carry both voice and data. Tait DMR Tier 3 gives you a powerful combination of flexibility, control and resiliency.

Tait DMR products are developed in conjunction with the open standards defined by the DMR Association, ensuring interoperability with other DMR equipment and opportunities for multi-vendor solutions with standardized interfaces.

### Key benefits of Tait DMR Tier 3

- Smart data applications (such as SCADA data transmission and location services),
- Tait Tough hardware,
- Resilient infrastructure,
- Secure communications,
- Lower total cost of ownership,
- Increased efficiency and productivity,
- Improved safety for your workers,
- Flexible migration options.

Tait also offers DMR Tier 2. The primary difference is that Tier 3 is a trunked radio solution, adding significant intelligence to your networking. DMR Tier 3 makes the network easier for your workgroups to talk, and more flexible for data traffic, automatically assigning network resources and prioritising voice and data calls for optimal performance.



## ■ Smart data applications for greater productivity

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### **Tait PTTtoC Solution**

The Tait PTTtoC Solution provides Push-to-Talk (PTT) capability for anyone, at anytime, anywhere. It does this by providing instant communication or PTT between cellular, WiFi and radio networks. It provides a choice of end-user devices that are familiar and aligned to each the user's job function.

### **Tait Unified Vehicle**

Drive up safety and productivity with supercharged connectivity, apps and computing power packed in to your Tait Mobile Radio. Tait Unified Vehicle creates a network of networks in the area around your vehicle, including radio, WiFi, bluetooth and cellular. It is an open platform that you can build upon for many years to come.

### **Tait GridLink**

Tait GridLink makes it simple and affordable to improve electrical grid intelligence with real time centralized monitoring and control of grid assets. Wide area based Distribution Automation systems bring the transformers and reclosers into the central SCADA system via a industry standard DNP3 & IEC interface.

### **Network Management**

Tait Enable is a revolutionary suite of software and hardware tools that places the control of your radio network firmly in the palm of your hand. Each tool can increase the intelligence of your radio management, while reducing the complexity and resource it demands.

**Tait EnableFleet:** You can configure and manage your radio fleet from a central control point using OTAP with our radio fleet management tool.

**Tait EnableMonitor:** Real-time monitoring gives you assurance that your network is operating as expected, so you can minimize or eliminate the impact of potential outages.

**Tait EnableReport:** Detailed reporting helps you optimize network use, by demonstrating that you are achieving your agreed service levels by reporting against key performance indicators (KPIs).

**Tait EnableProtect:** An Advanced System Key provides you with layers of programming security, so you can have confidence that no unauthorized users can interfere with your radio fleet.



# TAIT TRUNKED DMR

# WORKER SAFETY

## Greater safety for your workforce

### Man Down

Should someone fall and get hurt, the control center will immediately be notified. An accelerometer recognizes if the portable radio changes position, and after a few seconds without change a warning will sound.

You can save lives by dramatically improving response time if one of your people falls and cannot call for help.

### Location-based applications

Built-in support for location-based services allow your supervisors to know the exact location of remote workers and assets, and where events are occurring across your coverage area. DMR Tier 3 location-based business applications provide location-specific warnings and vital information.

As well as a dynamic, real-time view of operations, these applications support big data analysis capability to identify ongoing communications issues.

### Call availability

A utility workforce must cooperate seamlessly to maintain distribution, often in remote or challenging environments. Workers need constant access to communications - warnings and calls for assistance have first priority, and must connect first time, every time.

Tait DMR Tier 3 includes call availability features such as call priority, call timers and call queuing. With DMR Tier 3, emergency calls have priority access and get through first, no matter what.

### Call clarity

Workers need more than just access to voice calls to keep them safe - they need exceptional call clarity to reduce the risk of misunderstanding and time consuming repetition.

Our advanced digital DMR Tier 3 technology provides better noise reduction, and preserves voice quality more consistently than analog alternatives.

Workers can communicate faster and more accurately, increasing efficiency, and in an emergency that can save your workforce precious time.

### SCADA and Telemetry

Control your tools in the field from your desk with SCADA and Telemetry via an industry standard DNP3 & IEC interface and powerful data terminals. The less time your staff are on the road or in dangerous environments, the less chances they have for injury. The Voice and Data network can improve your workers' safety by keeping them out of harm's way, and it also saves time and money.

### Intrinsically Safe radios

Intrinsically Safe Tait DMR portables are engineered to operate safely in hazardous environments, ensuring your people have site safe communications they can depend on while they get the job done.

Tait Intrinsically Safe portable radios are rigorously assessed by the accredited ExCB Hazardous Location Certification Body to ensure the safety of users in potentially explosive atmospheres.



# TAIT TOUGH

The Toughest Radios in the Industry

## ■ Tait Tough

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Tait customers often have tough jobs. Utilities, Oil and Gas, Mining and Transport industries all place challenges on users and equipment. A critical safety tool is a reliable communications solution. The most exposed part of this solution is the portable radio.

That is why Tait engineered the TP9300 DMR radio to survive in some of the most hostile conditions. The TP9300 is one of the toughest radios ever made.

Our compact radios have been tested and proven to survive. With Tait, you can trust that your people can communicate whenever they need to.

### **The Drop Test**

Tait dropped portable radios from six feet onto concrete – that's 50% higher than the military requirement. The portables were dropped from 26 different angles, over and over again to ensure the durability of everything from the battery and antenna fittings to the internal componentry and the LCD screen. The portables survived each time.

### **Water Immersion Test**

Tait TP9300 portables are IP67 water and dust protection-certified to survive with no leaks in a metre of water for 30 minutes, and IP65 tested under water jets. At Tait, we go even further and test our radios at twice the depth and for longer time intervals, earning IP68 status for some models.

### **Build Quality**

Every component is selected and tested so the radio can endure harder knocks and more extreme temperatures. The radios are assembled and tested in our own factory, delivering maximum quality where it matters most.

### **Tough Family**

Tait stands behind the quality and ruggedness of all our products, not just our portables. Our mobiles and base stations have also been designed and proven to withstand extreme temperatures, hard knocks and the wear and tear of everyday use in the demanding environments that our clients work in.



# TAIT TRUNKED DMR PRODUCTS

**WE DESIGN, DEPLOY AND  
SUPPORT END-TO-END  
DMR NETWORKS**

## Tait Tough DMR Portables

### TP9300 DMR Portable: Rugged, feature-rich and business-critical communications grade

The TP9300 is one of the smallest and lightest critical communications grade portable radios on the market. TP9300s are designed tough, for rugged environments and uncompromised worker safety.

#### Key features:

- Supports VHF and UHF frequencies, including digital Band III,
- Quad-mode operation (Analog Conventional, MPT1327, DMR Conventional/Tier 2, DMR Trunking/Tier 3),
- Lithium-ion battery for longer performance,
- Exceeds MIL-Standards for durability and is IP67 compliant,
- Programmable emergency key for easy access in an emergency,
- Audible channel annunciation, and other functions, help keep eyes up and on the mission.

#### Models:

The TP9300 comes in a range of models that deliver different user interface experiences or meet specific challenges such as Intrinsically Safe radios. There are four models:

#### TP9310

The TP9310 is designed to offer a straight-forward user interface. This unit has no display or keypad and is often preferred in applications where only a small number of channel or groups are used and where dirt and grime make the use of a display or keypad impractical. The key features of this portable are:

- 16 way selector for channel or talk-group,
- Internal GPS option for location awareness.



#### TP9355

The TP9355 is designed to offer a compromise between powerful functionality and a simple interface. This portable supports a wide range of features and has both a user display and a four key keypad.

Suitable for applications where users will require a data display but will not need support for dialling or texting, the TP9355 offers a simplified experience.



#### TP9360

This portable supports a wide range of features and has both a user display and a 16 key keypad. It is designed for use in environments where there will be regular interaction between a user and the radio. The keypad also supports dialling or texting. A robust four line display allows access to a wide range of services and operational parameters. The key features of this portable are:

- Integrated GPS for location awareness applications,
- Encryption capable for voice security,
- Pre-defined status messages,
- Text message capability,
- Channel capacity up to 2000.



#### TP9361

The TP9361 is a multi-mode Intrinsically Safe portable. This includes analog, MPT1327, conventional DMR Tier 2 and Trunked DMR Tier 3. This radio is available in blue casing to allow easy identification as an IS radio. A number of regional compliance options are available.





## Tait Tough DMR Mobiles

### TM9300 DMR Mobile: Flexible, reliable and business-critical communications grade

A high-performing critical communications grade mobile, designed to deliver quality audio and intuitive operation for the many challenges that users face.

With multiple configuration options, programmable function keys, and software licenses available for additional features, the TM9300 is a future-proof communications choice.

#### Key features:

- Supports VHF and UHF frequencies, including digital Band III,
- Quad-mode operation (Analog Conventional, MPT1327, DMR Conventional/Tier 2, DMR Trunking/Tier 3),
- Interoperability in accordance with DMR standards,
- Encryption, voice and data, simulcast support and pre-set status messages,
- Options slot for flexible expansion capacity,
- IP54 rating and water-resistant control head that exceeds MIL-STD-810G.

#### Models

The TM9300 comes in a range of models that deliver different user interface experiences or meet specific challenges (such as custom interfaces or connectivity). Three models are described in more detail below:

#### TM9315

The TM9315 (analog and DMR) is designed to offer a more straightforward user interface with no keypad access and a digital channel number display. This unit is often preferred in applications where only a small number of channel or groups are used or where there is no value in having a keypad. The key features of this mobile are:

- 99 channel or talk-group selection,
- Encryption-capable for voice security,
- Optional GPS receiver for location awareness.

#### TM9355

This mobile is the top of the range and supports either a local or remote control head. When used with the standard control-head and keypad microphone it benefits from a large four line display. Alternatively a smaller hand held controller microphone can be deployed which simplifies installation in the modern vehicle environment.

The keypads also support dialling or texting.

A display on either of the control head types allow access to a wide range of services and operational parameters. As with the other TM9300 mobiles a large integration area and multiple connectivity options make this radio highly adaptable. The key features of this mobile are:

- Encryption capable for voice security,
- Pre-defined status messages,
- Text message capability,
- Channel capacity up to 2000,
- Optional GPS receiver for location awareness,
- Upgradable with Tait Unified Vehicle.

#### TM9395

The TM9395 is a multi-mode mobile that is designed to offer a data or integration platform. It has no control head but can be programmed via its front panel port. It also supports voice via the auxiliary interface. The key features of this mobile are:

- Integration or development platform,
- Data terminal,
- Optional GPS receiver for location updates,
- CCDI control protocol,
- Basic single channel voice radio (with optional speaker or handset).



# — TAIT TRUNKED DMR — PRODUCTS

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## Tait Tough DMR Base Stations

### The cornerstone of a Tait DMR system

Designed for critical operations, the Tait second-generation, native IP base station is intelligent and reliable.

Genuine, DMR open-standards compliance provides interoperability and greater choice for sourcing business-critical communications.

Both the TB9300 and TB7300 have exceptional receiver performance. They excel in four particular and critical areas: sensitivity, selectivity, intermodulation suppression, and blocking resistance. This combination delivers great range and one of the highest levels of protection from interference or overloading.

These base stations deliver powerful diagnostic information, as well as online tools to help identify issues. Save yourself maintenance trips by identifying and even solving many issues from your desk.

The TB9300 and TB7300 are two of the toughest base stations in the market.

### Key features:

- DMR Tier 2 or Tier 3, software upgradeable,
- 6.25kHz DMR TDMA Conventional or Trunked operation,
- Supports VHF and UHF frequencies, including digital Band III on TB9300,
- VHF and UHF (400-470MHz) on TB7300,
- Multiple transmit power configurations: Single or Dual 50W, Single 100W,
- Extensive remote management and monitoring options (software upgradable, WUI, NTP, SNMP),
- In-built diagnostics with detailed alarm monitoring and management via IP,
- In-built spectrum monitor to remotely investigate co-channel interference.

### Models:

The TB9300 and the TB7300 base stations offer different features and capabilities.

### TB9300

This base station is designed in a modular format and is based on a 4U rack system. Each 4U rack supports a power management unit, and either one 50W station, or two 50W stations, or a single 100W station. This modular format is designed to offer maximum flexibility for large system deployments. The key features of this base station are:

- 100W RF output option in most popular bands,
- Power management unit supports a wide range of power supply inputs,
- 48, 24 and 12V DC power options,
- 50W VHF and 40W UHF,
- Front panel diagnostic display,
- Extended power amplifier diagnostics.

### TB7300

This base station is a slimline 1U package with a 50W output in the VHF band and 40W output in UHF. The key features of this base station are:

- Lower standby power than the TB9300 (50%),
- 12V DC power supply only,
- VHF (148-174MHz) and UHF\* (400-470MHz),
- Smaller and lighter to simplify installations.



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## Tait DMR Infrastructure

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### Stand-alone repeaters

Complete Tait DMR trunked communications systems - including mobile and portable radios, basestations / repeaters and a trunked core network - are designed, built and tested by Tait to the highest quality standards.

Our commitment to DMR open-standards ensure opportunities for multi-vendor solutions with standardized interfaces. A single-sourced DMR trunked network reduces the risk of network elements not interoperating, and also provides one point of call for network service and support.

### TN9300-1 Core Network: Intelligent, reliable and robust

The Tait TN9300-1 is at the heart of Tait Digital Mobile Radio Tier 3 trunked solutions, rich in features and interfaces.

Tait's DMR TN9300-1 digital trunked networks are IP-based and provide open standards compliant, mission-critical communications over wide geographic areas. Their extreme resilience and multiple levels of redundancy will deliver critical communications you can depend on.

Their flexibility will ensure your organization can deploy cost-effective infrastructure to meet changing operational needs now, and into the future.

The TN9300-1 is responsible for establishing the calls for the radio fleet. The highly flexible and scalable design of the Tait TN9300-1 allows your organization to deploy a cost-effective infrastructure that meets your communication and operational needs both now and in the future.

Large DMR networks are scalable up to 20 nodes and 1000 RF channels. The Tait trunked DMR multi-site network is based on a central control node. This highly robust solid state platform controls all multi-site activity as well as providing a database for system monitoring. It also provides an interface to consoles and other external applications.

This approach allows for considerable future enhancement and creates a perfect platform from which to migrate in the future to trunked DMR Tier 3.

The use of the central node allows improved floor control in very busy systems reducing the number of likely issues. Key features of the infrastructure are as follows:

### Key features:

- Scalable and flexible for efficient and cost-effective network design
- Remote management for greater operational efficiency
- Efficient system infrastructure scalability based on IP network connectivity to the DMR node controller
- Robust design provides multiple levels of redundancy for reliable communications
- Secure communications
- Improved workforce safety and efficiency with flexible voice and data management
- Future proofed to protect your investment
- Multiple interfaces: DIP, AIS, SIP, PSTN/PABX, Voice Recorder



# TAIT TRUNKED DMR MIGRATION

## Flexible migration options for a smooth transition

Upgrading a radio network can be so disruptive that operators may choose to keep their existing network in service beyond its viable lifespan. But inevitably, technological and regulatory changes will drive the decision to move to digital.

When that time comes it is important to choose a solution engineered to ensure smooth and seamless migration from your existing radio solution – so your critical communications are uninterrupted.

### Simplest path to narrowbanding

DMR Tier 3 can fully reuse all your current 12.5kHz analog channels and provides 6.25kHz channel equivalence, dramatically increasing network capacity.

### Multi-mode terminals and base stations

Multi-mode capability on Tait hardware adds enormous flexibility to the rollout of DMR equipment. Each 9300 series terminal is capable of Analog Conventional, MPT-1327, DMR Tier 2, and DMR Tier 3. That means they can operate on your current analog radio system, then instantly move to your new digital network once it is activated.

### Analog-equivalent coverage reuses existing towers

Thanks to DMR's analog-comparable coverage, new DMR networks can often reuse expensive site infrastructure elements such as combiners, cabling and aerials.

Tait DMR Tier 3 has unrivalled wide area coverage and high transmit power, providing similar coverage to analog systems with more consistent signal quality. DMR Tier 3 can be deployed across your existing network, greatly increasing capacity with little or no investment in new sites.

### Support for legacy equipment interfaces

Tait DMR Tier 3 supports a wide range of current and legacy interfaces that can connect your existing third party equipment - dispatch consoles, voice recorders, and applications - to the new network. For continuity of service this is vital to managing cost and risk.

### Lower capital costs

DMR Tier 3 minimizes infrastructure costs by providing two logical paths in one physical channel, reducing the need for duplexers and combiners.

### Migration design, deployment and support services

Tait can take full responsibility for the seamless transition of your radio system, from system and coverage design to deployment and commissioning, leaving you to get on with what you do best.

Your people are an important part of the process, and Tait Change Management complements good project management, not only delivering your upgrade on schedule but with swift user adoption to give you the return on investment that you need.

Tait System Design considers compatibility between legacy and new equipment, and can transition seamlessly, defining and developing standard and non-standard network elements. We have extensive experience integrating partner products and those of your preferred suppliers.

A simpler and smoother migration means you can quickly achieve more with DMR Tier 3 from Tait.



# — TAIT TRUNKED DMR — **PARTNERS**

## Tait delivers unified critical communications solutions with a wide range of technology partners

Our dedication to deliver value to clients across the globe motivates us to work with best-in-class partners.

In an increasingly complex communications environment, our clients depend on us to work with best-in-class partners to deliver solutions that achieve exceptional operational results. Our clients expect choice and they expect on-going support for each integration between their Tait network and partner products. Tait stands behind all of our partner solutions with a full commitment to support the Tait interface.

We are committed to open standards because they make partnering and collaboration easier and more efficient, drive innovation, and allow us to bring new capabilities to market in an agile fashion.

Tait are proud of our strong partner relationships. Together with our partners we deliver world-class solutions for clients every day.

### Our Endorsed Technology Partners:





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Tait International Limited facilities are certified for ISO 9001:2015 (Quality Management System), ISO 14001:2015 (Environmental Management System) and BS OHSAS 18001:2007 (Occupational Health and Safety Management System) for aspects associated with the design, manufacture and distribution of radio communications and control equipment, systems and services. In addition, all our Regional Head Offices are certified to ISO 9001.

