Digital Mobile Radio (DMR) Solution Guide

DMR SOLUTION

Tait Digital Mobile Radio (DMR) Tier 3 delivers mission critical communications solutions to your organization

Tait Communications is leading the field with DMR Tier 3 solutions for mission critical communications. Our solutions are fully connected and secure, delivering quality voice, data and location services

Tait DMR delivers significant benefits to our customers, including:

▸ Worker safety
▸ Business and worker efficiency
▸ Information integrity
▸ Ease of migration
▸ Operational security
▸ Network performance and reliability.

Our DMR Tier 3 solution is both flexible and easy to migrate to, delivering a huge range of benefits that will truly enhance your business functionality.

▸ Adding data applications in the future, such as Workforce Management, will further increase the operational efficiency of your organization.
▸ Designed for flexibility and ease of migration, the Tait terminals can roam for service across analog MPT 1327 and DMR networks.
▸ DMR Tier 3 doubles your channel capacity, supports extensive data applications and delivers exceptional voice clarity.
▸ Tait DMR integrates radio technology with modern end user devices. *Bluetooth®* wireless technology creates future opportunity to integrate smartphones, PDAs and tablet PCs into your overall communication solution.
▸ Tested and proven industry-standard interfaces ensure a system that delivers true operational benefits for your organization.

Our skilled services engineers and designers work alongside your staff to design and configure the best DMR solution for your needs. As a member of the DMR Association, we actively participate in the development of the DMR standard and our products comply with the DMR Tier 3 ETSI standard.

DMR SOLUTION

Move with confidence from analog to digital with Tait DMR Tier 3, the platform of choice for mission critical communications

Worker Safety

Advanced Tait DMR features that safeguard your workers:

▶ Mission-critical data always gets through, even when the radio is engaged in a voice call. A range of channel signaling formats give precise control and flexibility to the radio system operator.

▶ Tait will provide Smartphone applications, allowing a familiar interface to be used for both normal activity and during stressful emergency situations.

▶ Integrated GPS means you always know the precise location of your workforce.

▶ Crystal-clear voice so the message is heard first time.

▶ One-touch status messaging for quick and easy notifications.

Business and Worker Efficiency

Tait DMR data solutions will increase workforce efficiency for your organization.

▶ GPS location and Automatic Vehicle Location (AVL) for your workforce and resources for faster deployment.

▶ Fast, clear and accurate text messaging.

▶ Pre-defined status messages for rapid response to common events.

▶ Workforce Management (WFM) applications.

▶ Save time in the field and on training overheads with a common menu structure across Tait DMR portables and mobiles.

▶ Over the Air programming (OTAP) of radio configuration will be available in future firmware releases.

Information Integrity

Protect your voice and data communications from eavesdroppers and only communicate with intended parties.

▶ Individual, private calls - even within designated groups.

Ease of Migration

Tait designs and delivers an easy migration path to your DMR network with features and functions designed to reduce complexity and your capital expenditure.

▸ Simply use your existing 12.5kHz radio channels, as they each provide two logical channels. This instantly doubles your channel capacity, delivering more voice and data capacity than your legacy analog network.

▸ Multi-mode terminals operate on your analog network and the new DMR network.

▸ Antennas, combiners and other site equipment may be re-used, reducing your infrastructure CAPEX.

▸ All message types that are currently supported by MPT 1327 are also available on the Tait DMR network.

Operational Security

Active cyber security provisions are features of every Tait DMR solution.

▸ Each terminal or other end user device is authenticated on the network at log on.

▸ Secure access for all internet ports.

▸ All unused ports can be de-activated.

▸ Node controllers include firewall software.

▸ Management and monitoring PCs support virus scanners.

▸ Can analyse call records to detect unauthorized access to the network.

▸ Network performance information and the call records database support different levels of access - using username and password.

Network Performance and Reliability

Tait DMR is engineered with users in mind, performing in the most demanding environments with confidence.

▸ Tait DMR base stations and terminals meet MIL –STD 810G specifications.

▸ Exceptional channel capacity - up to 2,000 channels on the terminals and 1,000 channels on the base station.

▸ High-redundancy system design for peace of mind operation.

▸ Remote fault diagnosis.

▸ Full monitoring of your DMR network from the centralized network management system.

▸ Dashboard reporting to monitor system performance and network loading.

▸ Flexible support agreements for the level of support your organization requires.

DMR SOLUTION

KEY FEATURES

Multi mode terminals combine analog and digital functionality

Even before your network migration to DMR, Tait DMR terminals can replace your legacy analog terminals, supporting a staged migration from your analog network. Multi mode terminals can operate in analog conventional, MPT 1327 and DMR trunked mode. Your workers can also roam for service between MPT 1327 and DMR networks.

Bluetooth wireless technology

Integrated *Bluetooth* wireless technology will increase the functionality of your communications network.

▶ Integrated *Bluetooth* wireless technology in the DMR TP9300 portables.

▶ Wireless accessories mean fewer cables in your vehicles and on your workers.

Migration and network management made easy by connection options

Migrating from analog, and then managing your DMR network is easier as the following interfaces will be supported on the Tait DMR system:

▶ Digital dispatch interface.

▶ LIP based location services interface.

▶ SNMP interface.

▶ Tait Enable network management system.

▶ VoIP PABX and FXO Gateway telephone network interfaces.

▶ Voice recorder interface.

▶ Tait inter-network interface (support between MPT classic, MPT-IP and multi node systems).

▶ Analog legacy interfaces MAP27, DIP, Actionet.

▶ Conventional line interface.

Dispatch interface open to any vendor

The Tait DMR solution supports an industry standards-based digital dispatch connection, enabling you to choose your preferred dispatch supplier.

▶ Session initiation protocol (SIP) digital interface.

▶ Full digital voice path to allow for end-to-end encryption.

▶ Network gateways are not required when using the SIP interface.

Different types of dispatchers have been defined and will be supported ranging from mission-critical high end console networks to PC-based dispatch applications and SIP phones.

KEY FEATURES

Tait Enable provides network management to increase visibility and control

The Tait Enable suite includes flexible, scalable tools that allow active management and control of the network. It also allows for increased visibility of network performance.

▸ Supports industry-standard SNMP protocol.

▸ SQL databases for storing network information.

▸ Secure access to the database records.

▸ KPI reporting linked to your company's objectives and outcomes.

▸ Dashboard for monitoring.

▸ Single-screen operation for ease of administrator training and visibility of all network elements at a glance.

▸ Flexible and simple configuration with a high level of customizability.

Improve safety and efficiency with Automatic Vehicle Location (AVL)

Support for AVL and telemetry data is inherent in the DMR standard, enhancing fleet visibility and worker safety. The Tait DMR AVL solution gives you the ability to track your vehicle assets and personal resources to improve organizational efficiency.

▸ Implemented using Short Data Messages (SDM) or packet data.

▸ Application interface based on LIP.

▸ Supports polling and unsolicited location provision.

▸ Allows telemetry data to be transmitted with location information.

▸ Automatic location information with an emergency message.

Above images are not to scale.

DMR SOLUTION

Take your communications to the next level with an integrated 9300 total solution from Tait Communications

DMR PRODUCTS

TP9300 Portable Radios

▸ Built-in GPS to improve efficiency and safety.

▸ Future proof multi-mode portables (DMR, MPT 1327 and conventional FM).

▸ Tait DMR portables are engineered for use in demanding environments meeting MIL-STD 810G specifications and with an IP67 rating.

▸ Water shedding grille ensures voice clarity and high audio volume is maintained in wet environments.

▸ Increase your usability with integrated *Bluetooth* wireless technology connectivity.

▸ Impact-protected corners provide shock absorbing impact protection.

▸ Optional 3-way zone selector.

TM9300 Mobile Radios

▸ Future proof multi-mode mobiles (DMR, MPT 1327 and conventional FM).

▸ Tough die-cast metal chassis with IP54 rated casing, giving protection against dust and splashing water.

▸ Tait DMR mobiles meet MIL-STD 810G specifications.

▸ Optional GPS to improve efficiency and safety of your workers.

TB9300 Base Station/Repeater

▸ Trunked base station, future proof with 6.25kHz equivalent technology.

▸ Adherence to the DMR Tier 3 standard with proven IOP tests.

▸ IP connectivity to allow efficient scaling and design of networks.

▸ Extensive range of remote management and monitoring capabilities.

▸ Designed and MIL -STD tested for reliability, combined with features to mitigate network outages.

▸ Part of a Tait DMR network providing, intersystem connections and standardized console connectivity.

▸ Built from the TB8100 pedigree.

PORTABLE OPTIONS

Keypad 4 or 16 key, white or black
Channel knob 16 positions or endless rotation
RFID Optional
Colors Black, yellow, red
Zone selector 3-way zone selector
IS options Gas environment: II 2G Ex ib II C T4, Dust environment: II 2D Ex ib III C IP67 T90
Software licenses Bluetooth wireless technology, Location Services, Trunked operation, Packet data

MOBILE OPTIONS

Power rating 25W and 40/50W (depending on frequency band and regulatory requirements)
Control head Graphical Control Head, Hand Held Control Head (HHCH), Dual Head and Remote Head (6 & 12 meter)
RFID Optional
Tilt sensor Optional
Software licenses Location services, Trunked operation, Packet data

BASE STATION/REPEATER OPTIONS

Power amplifier rating 50W and 100W
Power supply 88 to 264V (PFC power factor correction), 12V, 24V, 48V(Nominal +ve or -ve earth)
Number of channels 1 physical 100W channel (2 logical channels) 2 physical 50W channels (4 logical channels)
Software licenses Trunked operation, SNMP license, Analog line, Applications interface

DMR SOLUTION

High performance and reliable communication right up to the very edge of your radio network.

DMR SYSTEM AND ACCESSORIES

DMR Core Network

▸ Secure node-based architecture.

▸ Ability to add additional nodes to provide redundancy.

▸ Centralized design allows for efficient linking with limited bandwidth requirements.

▸ PSTN dialing allows a user to make phone calls on DMR systems that support telephone interconnect (a software license is required).

DMR Network Capacity

The DMR network is scalable from a single site with one base station/receiver to a wide area network with multiple nodes and up to 1,000 base stations and 100 network gateways.

▸ One node will support up to 200 voice paths.

▸ A network can have up to 20 nodes.

▸ Each node can support between 1 and 100 sites, if the number of voice paths are below 200.

▸ Redundancy is achieved by over-provisioning of nodes, and adequate failure mode voice traffic IP bandwidth.

▸ AVL data is obtained using:

  • A network poll. 2-3 polls per second per control channel.

  • Embedded signaling during a voice over.

▸ Multiple control channels are supported either per RF frequency or with multiple RF frequencies per site.

DMR Product Accessories

A complete portfolio of TDMA-qualified accessories will be provided to support the operational use of your Tait DMR products. The specially-designed TDMA accessory connector should be used with the accessories to achieve mission-critical performance.

▸ A range of audio accessories including speaker-microphones, headsets, earpieces, speakers and a remote kit for hands-free operation in your vehicle.

▸ Professional *Bluetooth* wireless technology accessories.

▸ Portable chargers, including in-vehicle, single fast chargers, and 6-way multi-chargers.

▸ Standard and high-capacity Li-Ion portable batteries.

▸ Various carry cases are available to ensure portable protection.

▸ Vehicle installation kits for different mobile mounting options.

DESIGN, DEPLOY AND SUPPORT YOUR DMR SOLUTION WITH OUR COMPREHENSIVE SERVICES

Choosing Tait as your communications partner ensures your solution is designed, deployed and supported by experienced service professionals, who listen to you, understand your requirements and deliver innovative services with integrity. With Tait on side, world-class engineering and comprehensive services deliver solutions that demonstrate genuine understanding of the challenges your organization faces.

You will experience flexibility to customize your network to exacting requirements and the freedom to work with your preferred suppliers and technologies. That means enhanced network performance, positive user adoption, mitigated risks and safer workers – and an enduring, collaborative partnership for the life of your network.

DMR SOLUTION

ISO 9001
ISO 14001

Bluetooth®

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