DIMETRA MTS LiTE TETRA BASE STATION

FLEXIBLE TETRA COVERAGE SOLUTION.

The DIMETRA™ MTS LiTE base station is an indoor TETRA base station, combining exceptional RF performance with a small and compact form factor, making it well suited for temporary site deployments as well as coverage infill and extension.

Successful operation of critical communications networks requires the capital and operational costs of network expansion to be balanced against meeting the needs of the end users for coverage. To address this challenge, operators require flexible network coverage solutions. The MTS LiTE base station meets the need for exceptional coverage and flexible installation through its small and compact form factor.

FLEXIBLE COVERAGE SOLUTIONS

For many organisations, such is the criticality of these networks that they are often the difference between success and failure. That is why service continuity is a cornerstone of mission critical networks. However given limited budgets, delivering service continuity over a wide geographical area can be a challenge. Motorola Solutions believes that flexible coverage solutions are key to addressing the trade-offs of maximising coverage and capacity whilst minimising outlays.

For many operators, initial network deployment goals have focused on delivering widespread outdoor coverage through a macro-cellular base station network. This approach has proved to be efficient in terms of enabling rapid geographical coverage – and cost effective, in terms of minimising site deployment requirements.

Great outdoor coverage does not always mean good indoor coverage. Indoor and densely cluttered environments can suffer challenges in terms of coverage due to weak signal penetration through building materials such as concrete, brick and steel. To fill such voids in coverage, operators can deploy bi-directional amplifiers (BDAs), also known as RF repeaters, as well as leaky feeder antenna arrangements connected to existing base stations. BDAs extend coverage to a defined area by amplifying the signal received from a donor base station. Whilst BDAs can expand coverage without the need for additional switching capacity, they do require complex RF planning that can make it difficult to achieve the required coverage performance and reliability. They also don't increase capacity. With its small and compact form factor the MTS LiTE base station not only enables flexible installation but adds both extra capacity and coverage.

EFFICIENT COVERAGE EXTENSION

For networks that place a premium on resilience, a system architecture that allows for multiple points of failure is important. If for instance BDAs have been deployed in the vicinity of a major incident, a sudden surge in user traffic could overload control channel capacity at the donor site, resulting in widespread loss of service. So while BDAs appear to offer lower entry costs, this must be balanced with end user requirements for reliable coverage and capacity that can meet the peaks in demand.

Faced with the need to provide reliable, widespread and uniform coverage, coverage solutions need to be cost effective and offer high flexibility. These solutions need to be small, compact and easy to install – especially where space is at a premium. By harnessing the intelligence and superior RF performance of MTS LiTE base stations in your system design, traffic bottlenecks and service interruptions can be minimised.

OPTIMISED FOR COVERAGE INFILL

By deploying MTS LiTE base stations in coverage black-spots, frequencies from wide area cells can be re-used more efficiently – this means you get much higher system capacity through smarter spectrum usage. By harnessing the extensive portfolio of capacity management features, traffic can be intelligently managed between localised MTS LiTE coverage areas and wide area macro cells – giving an increase in trunking efficiency and reducing congestion.

HIGH SPECTRUM EFFICIENCY

With its flexible transmission power capability, the MTS LiTE base station is well suited to short as well as long range operation. This means you can re-use frequencies from wide area cells more efficiently and thereby increase the system's capacity through smarter spectrum usage.

SMART CAPACITY MANAGEMENT

With built-in system capabilities such as Common Secondary Control Channel, Preferred Subscriber Class and Valid Sites, the DIMETRA MTS LiTE base station is able to minimize localised congestion problems.

FLEXIBLE DEPLOYMENT

With its small and compact form factor the MTS LiTE can be used in a wide range of applications. This includes vehicle mounted installations for transportable coverage; tunnel coverage and in-building coverage applications.

SUPERIOR RF PERFORMANCE

The MTS LiTE base stations feature the same best-in-class RF technology found in all of the DIMETRA MTS base stations. This means wider RF coverage with much fewer sites.

OPERATIONAL EFFICIENCY

The MTS LiTE base stations provide improved coverage, but also lower operational costs.

REDUCED SITE INSTALLATION REQUIREMENTS

With its small footprint and low height, the MTS LiTE offers increased space savings — this not only makes site sharing for co-located equipment easier but also reduces site rental costs.

LOW POWER CONSUMPTION

As the network grows, energy bills can quickly mount. That is why we designed the MTS LiTE to consume very little power through the use of high efficiency processing and amplification platforms.

EFFICIENT SITE TRANSMISSION

Adding more sites to your network will often call for incremental investments to be made in backhaul transmission - where leased lines are used for site transmission, annual costs can be substantial. By providing support for a range of networking technologies including E1, X21 and IP-over-Ethernet, the MTS LiTE gives access to the most cost effective backhaul solutions available today and in the future.

OPTIMIZED SPARES INVENTORY

To streamline your investment, the MTS LiTE and our other MTS base stations share common field replaceable units. This leads to reduced spares holding costs and improved operational efficiency.

CENTRALIZED NETWORK MANAGEMENT

As an added benefit, we've designed the MTS LiTE base stations to use the same central network management solution used for DIMETRA systems, allowing these devices to be remotely monitored, diagnosed and upgraded if needs be, unlike other coverage products. This means minimal re-training for network management staff when the MTS LiTE is introduced into a DIMETRA network.

ROBUST OPERATION

REDUNDANT SITE LINKS

When a network is mission critical, there cannot be a single point of failure. This principle has been carried through into the design of the MTS LiTE. If for example a site link fails, a redundant link takes over and maintains service continuity – without end users even noticing the outage.

LOCAL SITE TRUNKING

In the event that all site links are down, the MTS LiTE moves into Local Site Trunking Mode. This allows critical group calling services, with or without encryption, to be maintained for end users located within the coverage area of the base site.

MULTIPLE DEPLOYMENT OPTIONS

With its scalable power range and ease of deployment, the versatile MTS LiTE enables a variety of applications.

IN-BUILDING COVERAGE

With a small and compact form factor, the MTS LiTE can easily be installed in an equipment room and connected to a distributed antenna system for indoor coverage applications.

TUNNEL COVERAGE

In environments that are difficult to penetrate from external RF sites, such as tunnels, leaky feeder systems are often used. Extensive leaky feeder systems generally require high RF power to compensate for losses along the length of the cable. With a maximum transmit power of 40W, and high receiver sensitivity, the MTS LiTE can minimise the requirement for additional amplifiers that compensate for cable losses. A further benefit is that because the MTS LiTE supports non-GNSS as well as GNSS operation, installation in underground environments can easily be accommodated.

TEMPORARY DEPLOYMENTS

Effortless transportability and rapid deployment ensure secure and seamless coverage on the go whenever it is needed. For rapid deployment scenarios such as in disaster response, the MTS LiTE is easily integrated with a co-located DIMETRA Express system in a vehicle mounted installation, to form a mobile standalone TETRA system.

RURAL COVERAGE

As the MTS LiTE is a full function TETRA base station, service is not dependent on wide area cells, making it an ideal solution for remote area coverage.

Selecting the right coverage solution requires planning and expertise. With over 90 years of experience of serving public safety agencies, Motorola Solutions is uniquely positioned to deliver mission critical communications. Motorola Solutions is recognised as the leading provider of TETRA communications systems. Our experience, along with our skills, people, partnerships and alliances, allow us to build innovative, fully integrated technologies that let organisations share vital information with ease and confidence. We've been doing it for over 90 years and we'll be standing by our customers for years to come.

ADDITIONAL FEATURES

- Common Secondary Control Channel
- Interference Detection and Correction
- Air Interface Encryption
- Air Interface Authentication
- End-to-End Encryption
- Traffic Channel Rotation
- Dynamic Channel allocation between voice and packet data

SPECIFICATIONS

	UHF	800MHz
Frequency Bands	350 - 470 MHz	807 - 870 MHz
Operating Bandwidth	5 MHz	19 MHz
Base Radios	1 (4 time slots)	
Carrier Spacing	25 kHz	
Transmit Power at top of base station cabinet	Up to 40 Watt	
Reciever Sensitivity at top of base station cabinet / input connector	-120 dBm typical (static at 4% BER) -113.5 dBm typical (faded at 4% BER)	-119.5 dBm typical (static at 4% BER) -113.5 dBm typical (faded at 4% BER)
Diversity Reception	Dual, duplexed	
Transmission	Ethernet, X21 or fractional E1 connection Multi Protocol Label Switching (MPLS) Two Ethernet or Two E1 ports with inbuilt multiplexer for either loop protection or redundancy (up to 10 base stations can be connected in loop) Support for satellite transmission	
High Speed Data	TEDS QAM modulation schemes with 25 / 50 kHz channel bandwidths	
Input Power	100/115/230 V AC, 50/60 Hz and -48 V DC	
Power Consumption	310W at 40W TX, 280W at 25W TX, 235W at 10W TX	340W at 40W TX, 300W at 25W TX, 245W at 10W TX
Operating Ambient Temperature	-30 to 55 °C (without fans) / -30 to 60 °C (with fans)	
Width x Height x Depth	0.45m x 0.38m x 0.48m	
Weight	36 Kg	

For more information, please visit us on the web at: motorolasolutions.com/DIMETRA

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