



MTS2

Landmark performance for your mission critical TETRA network



When the availability of communications is mission critical, coverage quality cannot be compromised. To provide reliable coverage, your network must be resilient to unforeseen events, natural and man-made. When financial resources are constrained, a solution that delivers high performance becomes essential. That is why the best-in-Class radio coverage and fully redundant design of our MTS2 TETRA base station are essential.

ADDITIONAL FEATURES

- Interference Detection and Correction
- Air Interface Encryption
- Multi-Slot Packet Data (MSPD) for enhanced data services
- Hot swappable modules
- Traffic Channel Rotation
- Dynamic Channel allocation between voice and packet data

Future Ready Design

Built and designed for your future communications needs, the MTS2 is TEDS Ready – software upgradable to support the TETRA Enhanced Data Service, a mission critical platform for secure high speed data services.

Providing support for X.21, E1, IP-Over-Ethernet and MPLS means that the MTS2 works seamlessly with the most efficient and cost effective transmission networking technologies available today and in the future.

Flexible Capacity and Coverage

A small and modular base station, the MTS2 comes equipped with advanced capacity and coverage enhancing capabilities:

- C-SCCH Ready – software upgradable to support additional control channels on the main carrier, quadrupling existing control channel capacity.
- Easily expanded to a 4-carrier system without having to change antenna installations. Key parts of the MTS2 can be reused in an MTS4 cabinet.
- Best in class transmitter output power and receiver sensitivity together with various multiple antenna diversity options, allowing more coverage with fewer sites and better data performance.

Optimised Total Cost of Ownership

Running costs of base station sites can account for a sizeable portion of your network's total cost of ownership. For this reason, the MTS2 has been designed with advanced capabilities that help to minimise annual operational expenditures. These capabilities enable:

- Low power consumption through the use of high efficiency processing and amplification platforms. These can deliver significant operational cost savings over your network's lifetime.
- Reduced battery capacity requirements and low heat dissipation due to excellent power efficiency. With a strong integrated battery charger, power supply costs are kept to an absolute minimum.
- Reduced transmission costs – native MPLS support using IP-over-Ethernet capability means that the MTS2 can enable up to 70% savings compared with non-IP based alternatives.
- Top cable entry and bottom to top cooling airflow allowing the cabinet to be placed up against a wall or neighbouring equipment, minimising costly site space requirements.
- Fits conveniently into a 19 inch cabinet, avoiding the need for disassembly, re-racking or repeat

SPECIFICATION SHEET

type-approval. This allows the best possible space utilization and support for both outdoor and shock absorbing transportable enclosures.

Reliable and Easy to Maintain
The MTS2 offers supreme reliability plus flexible access for easy servicing. Key features include:

- Two E1 or Ethernet interfaces that can be provided with the MTS2 to facilitate implementing link redundancy using ring configurations. Redundant E1 and Ethernet ports can be activated in the event of link failure, ensuring continuous connectivity.
- Local Site Trunking – in the event of site link failure, the base station is able to operate independent of the mobile switching office, maintaining secure talkgroup communications throughout.

- Non-GPS operation – supports operation in the absence of a GPS signal, ideally suited to underground applications.
- Full redundancy of base radio including support for automatic Main Control Channel switching.

Totally Secure – Day and Night

With the MTS2, there is no need to worry about theft or vandalism. The basestation equipment includes the latest security features for total peace of mind:

- The alarm interface supports 15 external user input alarms and 2 external user outputs.
- Door alarming contacts – an effective intrusion detection system.

Specifications

| | UHF | 800MHz |
|--|---|---|
| Frequency Bands (TETRA) | 350 - 430 MHz, 380 - 470 MHz | 851 to 870 (Tx), 805 to 825 (Rx) MHz |
| Frequency Bands (TEDS) | 350 - 370 MHz, 380 - 430 MHz * | |
| Transmit Power at top of base station cabinet | 25W (10W TEDS) 40W (with combiner bypass) (20W TEDS) | 25W (10W TEDS) 40W (with combiner bypass) (20W TEDS) |
| Power | - Input Power 115/230V AC, 50/60Hz and -48V DC - Equipped with integrated battery chargers | - Input Power 115/230V AC, 50/60Hz and -48V DC - Equipped with integrated battery chargers |
| Sensitivity at top of base station cabinet | -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) |
| Operating Ambient Temperature | -30 to 60°C | -30 to 55°C |
| Weight (max, fully equipped with 2 BR) | 48 kg | 48 kg |
| Dimensions (Height x Depth x Width) | 0.51m x 0.47m x 0.44 m | 0.51m x 0.47m x 0.44 m |
| Power Consumption | Power consumption 245W (Low Power BR**): - Equipped with 2 Base Radios - with no combining and 10W TX output Power consumption 630 Watt (High Power BR) - Equipped with 2 BRs - 25 W transmit power (after hybrid combiner) Note: High Power BR Tx is 40W - bypassing combiners. TEDS available with High Power BR | Power consumption 245W (Low Power BR**): - Equipped with 2 Base Radios - with no combining and 10W TX output Power consumption 630 Watt (High Power BR) - Equipped with 2 BRs - 25 W transmit power (after hybrid combiner) Note: High Power BR Tx is 40W - bypassing combiners. TEDS available with High Power BR |
| Diversity Reception | Dual or triple-diversity, duplexed or non-duplexed | Dual or triple-diversity, duplexed or non-duplexed |
| High Speed Data | TEDS QAM modulation schemes with 25 / 50 kHz channel bandwidths | TEDS QAM modulation schemes with 25 / 50kHz channel bandwidths |
| Carrier Spacing | 25 kHz (25 / 50 kHz for TEDS) | 25 kHz (25 / 50 kHz for TEDS) |
| Operating Bandwidth | 5 MHz | 19 MHz |
| Transmission | • Support for satellite transmission • IP Over Ethernet, MPLS, X, 21 or fractional E1 connection • 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 • IP Over Ethernet, X, 21 or fractional E1 connection • 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) |

* For additional TEDS bands, contact your Motorola representative.
** BR - base radio



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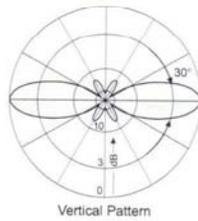
**Omnidirectional Antenna
Vertical Polarization**

380-400
V

KATHREIN
Antennen · Electronic

VPol Omni 380-400 360° 5dBi

| | |
|---|--------------------------------------|
| Type No. | K 75 15 37 |
| Frequency range | 380 - 400 MHz |
| Polarization | Vertical |
| Gain | 5 dBi |
| Impedance | 50 Ω |
| VSWR | < 1.5 |
| Intermodulation IM3 (2 x 43 dBm carrier) | < -150 dBc |
| Max. power | 500 W (at 50 °C ambient temperature) |



Mechanical specifications

| | |
|--------------------|---------------------|
| Input | 7-16 female |
| Connector position | Bottom |
| Weight | 5.5 kg |
| Radome diameter | 51 mm |
| Wind load | 140 N (at 150 km/h) |
| Max. wind velocity | 200 km/h |
| Packing size | 1878 x 206 x 152 mm |
| Height | 1612 mm |

936.1485/d Subject to alteration.

Omnidirectional Antennas

Solid, reliable construction

KATHREIN
Antennen · Electronic

Accessories (order separately)

| Type No. | Description | Remarks | Weight approx. | Units per antenna |
|----------|-------------|----------------------------|----------------|-------------------|
| 738 908 | 2 clamps | Mast: 94 – 125 mm diameter | 2.8 kg | 1 |

Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

Material: **Radiator:** Copper and brass. **Radome:** Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

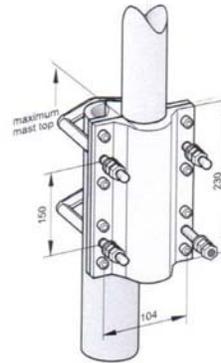
Solid, reliable construction: Omnidirectional antennas are often installed at exposed sites on the top of masts, so special attention has been paid to their mechanical construction. The exceptionally stiff fiberglass tube with low tip deflection will withstand wind velocities of up to 200 km/h.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.

Environmental conditions: Kathrein cellular antennas are designed to operate under the environmental conditions as described in ETS 300 019-1-4 class 4,1 E. The antennas exceed this standard with regard to the following items:
– Low temperature: –55 °C
– High temperature (dry): +60 °C

Environmental tests: Kathrein antennas have passed environmental tests as recommended in ETS 300 019-2-4. The homogenous design of Kathrein's antenna families use identical modules and materials. Extensive tests have been performed on typical samples and modules.

Long service life: According to our own experience, the outstanding mechanical characteristics of Kathrein antennas result in an antenna service life of over 15 years.



Please note:

As a result of more stringent legal regulations and judgements regarding product liability, we are obliged to point out certain risks that may arise when products are used under extraordinary operating conditions.

The mechanical design is based on the environmental conditions as stipulated in ETS 300 019-1-4, which includes the static mechanical load imposed on an antenna by wind at maximum velocity. Extraordinary operating conditions, such as heavy icing or exceptional dynamic stress (e.g. strain caused by oscillating support structures), may result in the breakage of an antenna or even cause it to fall to the ground. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

The details given in our data sheets have to be followed carefully when installing the antennas and accessories.

The limits for the coupling torque of RF-connectors, recommended by the connector manufacturers must be obeyed.

Any previous datasheet issues have now become invalid.





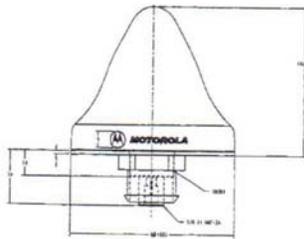
RLN 4394B GPS Antenna



The enclosed product is an upgrade replacement for the previously shipping RLN4394A GPS Antenna. While different in form factor, the new version has improved performance features such as:

- 4dB Increase in Gain over previous model
- 20+dB Signal to Noise Ratio Improvement over Previous Antenna
- Much Cleaner Signal, Increases Anti-Jam Performance
- Improved Filtering
- Narrows out of Band Range
- New Nut Designed to Provide Low Cost Solution for Ease of Mounting and Assist in Weatherproofing.

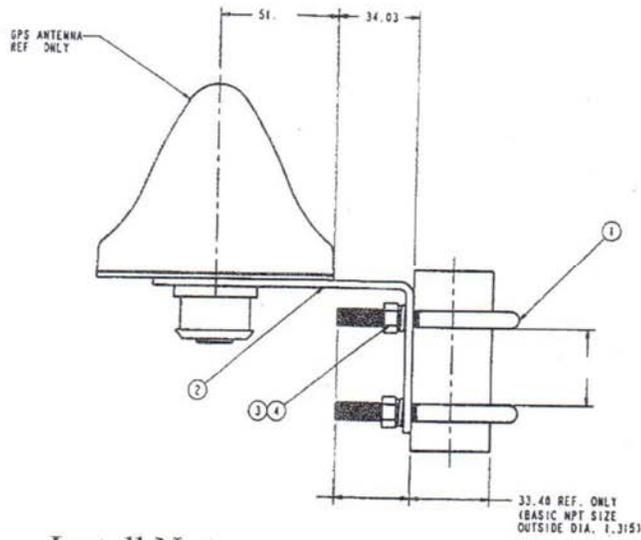
If you have any questions regarding this product, please call your Motorola AAD representative or 1-800-422-4210



MOTOROLA
GPS Products



Antenna and Mount Assembly



Install Notes:

- Min. Antenna Nut Torque: 87 in-lb. or 100 kgf-cm
- Weatherproof mating N-connectors (included with RG 400 cable) are required to ensure water resistant seal
- For optimal performance ensure base of antenna is position as closed as possible to the to top of the mounting pole
- Select a mounting location with a clear view (360 deg.) of the sky
- Use extreme caution when mounting near high voltage power lines



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Tabela sa osnovnim podacima za dobijanje dozvole

| RR identifikacija | Naziv parametra | Sektor |
|-------------------|--|---|
| 4A | Naziv uže lokacije predajnika | LUSTICA |
| 4B | Lokacija predajnika | Herceg Novi/CG85340 |
| 4C | Geografske koordinate (WGS84) | E 18.6133255° N 042.4098444° |
| 9EA | Nadmorska visina terena [m] | 545m |
| 7A | Širina opsega i vrsta emisije | 380-400MHz 21K0D7WDT |
| 8A | Izlazna snaga predajnika [dBm] | 44 |
| 8B | Efektivno izračena snaga – EIRP [dBW] | 50 |
| | Tip predajne antene | Katherin K751537 |
| 9 | Usmjerenost antene | - |
| 9A | Azimut glavnog snopa antene [°] | - |
| 9B | Elevacioni ugao glavnog snopa antene [°] | - |
| 9C | Širina glavnog snopa antene [°] | 360 |
| 9D | Polarizacija antene | Vertikalna |
| 9E | Visina predajne antene iznad terena [m] | 20 |
| 9EB | Maksimalna efektivna visina antene | 564m (izracunato koriscenjem SRTM3) |
| 9G | Dobitak antene [dBi] | 5 |

