



# **TETRA / TETRAPOL / CDMA 450 / GSM 450**

**Kathrein Antennas, Filters and  
Combiners from the World's  
largest Antenna Supplier**



- VPol and XPol Technology
- Remote Electrical Tilt System (RET)
- Environmental Tests

**KATHREIN**

Antennen • Electronic



## **TETRA / TETRAPOL / CDMA 450 / GSM 450**

### **Omnidirectional Antennas**

#### *Features:*

- *Extremely small radome diameter ( $\varnothing$  20 - 51 mm)*
- *Shortest height with reference to gain  
Height of up to 3.3 m*
- *Gain of up to 8.5 dBi*
- *Excellent grounding*
- *Fixed electrical tilts  
5°/8.5°*

Omni

The versions with a radome of 51 mm are made of an exceptionally stiff fiber-glass tube, which results in a max. tip deflection of 1.5° with a 3 m long tube at wind velocities up to 180 km/h.

The antennas are fitted with a solid metal cap which provides excellent grounding via a 22 mm<sup>2</sup> copper cross-section.

### **Train Antennas**

#### *Features:*

- *Slim and unobtrusive design*
- *Integrated GPS-Module  
Additional GPS-Amplifier available*
- *DC-grounded and approved by Deutsche Bahn AG against lightning and high-tension lines*



Train antenna





## **TETRA / TETRAPOL / CDMA 450 / GSM 450**

### **V-Pol Antennas**

Kathrein's V-Pol antennas are available in broadband version, to cover the full frequency range of 380 - 500 MHz.

The reliability of our specially designed V-Pol antennas has been proven for more than 15 years.

#### *Features:*

- *Half power beam widths 65°/115°*
- *Adjustable mechanical downtilt clamps available*
- *Height of up to 2 m*
- *Gain of up to 15 dBi*

115° V-Pol



65° V-Pol





## **TETRA / TETRAPOL / CDMA 450 / GSM 450**

### **X-Pol Antennas**

Kathrein's X-Pol antennas for TETRA/TETRAPOL, CDMA 450 and GSM 450 are the result of the consequent continuing development on the basis of the experience with the well-approved GSM-technology.

#### *Features:*

- *Half power beam widths 65°/88°*
- *With fixed or adjustable electrical downtilt*
- *RET-System upgrade possible for adjustable electrical downtilt*
- *Height of up to 2 m*
- *Gain of up to 14.5 dBi*
- *Patented vector-dipole design*



**88° X-Pol**



**65° X-Pol**

**65° X-Pol  
0° - 14° T**





## **TETRA / TETRAPOL / CDMA 450 / GSM 450**

### **Remote Electrical Tilt (RET) System**

Network planning is becoming ever more complicated, even for TETRA / TETRAPOL Systems. The Challenge for wireless network operators is to balance coverage, capacity, call quality and costs, in order to gain maximum revenue from their Network.

The possibility of coverage adjustment through the vertical antenna pattern is thus a very important aspect for mobile communication planners. Kathrein's Remote Electrical Tilt (RET) system represents the latest antenna system technology.



- *Central Control Unit (CCU)*
- *Portable Control Adapter (CCA)*
- *Remote Control Unit (RCU)*
- *DC Power and Signal Splitter*
- *Control Cables*
- *Lightning Protection Device*
- *Earthing Clamp*

*Optional:*

- *Smart Bias Tee*



# **TETRA / TETRAPOL / CDMA 450 / GSM 450**

## **Filters, Combiners, Amplifiers**

- Band-pass filter, band-stop filter, S-P filter, low-pass filter
- Duplexer
- Multi-band combiner, transmitter combiner
- 3-dB coupler, hybrid ring junction, splitter, circulator, loads
- Receiver multicoupler
- Customised combiner systems

### ***Dual Band Combiner***

50 - 470 / 806 - 2500 MHz

PMR, Tetra, tetrapol /

CDMA 800, GSM 900, GSM 1800,

UMTS, WLAN



782 10460

### ***Duplexer***

e.g. 380 - 385 / 390 - 395 MHz

Tetra, Tetrapol



782 10361



## **TETRA / TETRAPOL / CDMA 450 / GSM 450**

### **Indoor Antennas**

Indoor antenna applications are supposed to blend in their surroundings as good as possible. Kathrein's indoor antennas meet with these requirements due to their special design which easily matches with the environment.

- *Directional antennas for wall mounting*
- *Omnidirectional antenna for ceiling mounting with special unobtrusive design*
- *Splitters available as electrical accessories for power distribution*



**4-way Splitters**



**Indoor Panel**



**Indoor Omni**



## The Kathrein Group

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*Kathrein is an international enterprise active in antenna and communications technology. For more than 87 years, our group of companies has been developing, producing and marketing a wide range of antenna systems and signal processing products. Always being one step ahead in technology has ensured that Kathrein is the leading company in the world market.*



## More Information?

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### Visit

<http://www.kathrein.de>



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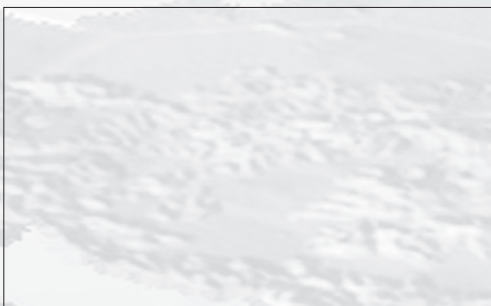
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### Our representative



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