Network planning is becoming more and more complicated, even for LTE/WiMAX 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.

Components for Remote Electrical Tilt
- Central Control Unit (CCU)
- Portable Control Adapter (PCA)
- Remote Control Unit (RCU)
- DC power and signal splitter
- Control cables
- Lightning Protection Device (LPD)
- Earthing clamp
- Optional: • Smart Bias Tee
- OMC Management Software ASM (Antenna System Manager)

Remote Electrical Tilt (RET) system

1. The Portable Control Adapter (PCA) is specially designed for portable applications and for use by installers and maintenance staff.

2. The Slimline RCU with small dimensions and daisy-chain functionality.

It is a simple device for running the RCU attached to the Kathrein base station antennas, and for adjusting the vertical electrical downtilt locally.

Kathrein’s overall RET System works in accordance with the AISG (Antenna Interface Standards Group) and 3GPP (3rd Generation Partnership Project) standard. With all RET components both standards are served at the same time.

For more information on Kathrein’s RET system, please contact our representatives:

Kathrein welcomes every new specification request and/or requirement notification in order to further R&D in this field. Here it is possible to develop two, four or more column systems in cooperation with system equipment manufacturers or to meet given specifications.

The RET System consists of the following components:
- Smart bias tee
- OMC Management Software ASM (Antenna System Manager)
- Evolution of Products for Ultra-broadband Solutions to cover UMTS/LTE/WiMAX

Indoor Antennas for UMTS and LTE 2.6

Smart, MIMO and Multi-band Antennas

Here it is possible to develop two, four or more column systems in cooperation with system equipment manufacturers or to meet given specifications.

Single column antenna 1x8dBi and double column 8x8dBi solutions offer the 4 x 4 or 4 x 4 MIMO applications

Over the years, Kathrein has gained a wealth of experience in smart, MIMO and beam-forming antenna technologies.

In terms of LTE 2.6/WiMAX requirements, these can be easily adapted to 2.6 or 3.6 GHz.

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Kathrein are pleased to announce the introduction of Ultra-broadband antennas, which are suitable for further mistakes, including dual, triple and quad-band antennas are in serial production or available soon.

### Customer Benefits

**Ultra-broadband Antennas**

- **Bandwidth:** Up to 1.5 GHz (1710-2690 MHz)
- **Protection of investment for future ranges:** Up to 1.5 GHz (1710-2690 MHz)
- **Size and visual appearance equivalent to existing high-band antennas.**

**Double-band Antennas**

- **Available as a single or double unit**
- **Features:**
  - XPol and XXPol technology
  - 70°/50° full power beam widths
  - With adjustable, fixed or no electrical downtilt
  - Optional upgrading to a remote electrical tilt version by using a separate remote control unit

**Multi-band Combiners**

- **Features:**
  - DC by-pass function between all ports
  - Enables feeder sharing
  - Suitable for co-siting purposes

**Set-up Antenna Line Products**

- **Features:**
  - AISG capability, including RET (Remote Equipment Test) and CM (Central Monitoring), or both standards
  - Excellent noise figure, low insertion loss, high gain
  - DC step available as option
  - Enables feeder sharing
  - Suitable for co-siting purposes

**Double Tower Mounted Amplifier (DTMA)**

- **Features:**
  - UMTS, LTE in one common radome and each antenna has its own independent electrical downtilt mechanism.

- **Features:**
  - Suitable for co-siting purposes
  - Reduces infrastructure costs
  - Enables feeder sharing
  - Suitable for indoor or outdoor applications
  - Available as a single unit, or for Kathrein antennas, in a dual unit
  - Can be used as a combiner or in reciprocal function
  - DC combiner available between all ports
  - Wall or mast mounting
  - Low insertion loss
  - High isolation
  - DC step available as option
  - Works with a built-in DC step, built-in lightning protection and high input power

### Ultra-wideband Antennas (Single or double unit)

**Features:**

- **Bandwidth:** 1.5 GHz (1710-2690 MHz)
- **Protection of investment for future ranges:** Up to 1.5 GHz (1710-2690 MHz)
- **Size and visual appearance equivalent to existing high-band antennas.**

- **Available as a single or double unit**

- **Features:**
  - XPol and XXPol technology
  - 70°/50° full power beam widths
  - With adjustable, fixed or no electrical downtilt
  - Optional upgrading to a remote electrical tilt version by using a separate remote control unit

### Dual-band Antennas

- **Features:**
  - 70°/50° full power beam widths
  - With adjustable electrical downtilt for three different frequency ranges separately
  - Optional upgrading to a remote electrical tilt version by using a separate remote control unit
  - Slanted downtilt range

### Triple-band Antennas

- **Features:**
  - 70°/50° full power beam widths
  - With adjustable electrical downtilt for three different frequency ranges separately
  - Optional upgrading to a remote electrical tilt version by using a separate remote control unit

### Quad-band Antennas

- **Features:**
  - 70°/50° full power beam widths
  - With adjustable electrical downtilt for four different frequency ranges separately
  - Optional upgrading to a remote electrical tilt version by using a separate remote control unit

### Kathrein offers a wide range of co-siting and combine solutions as well as independent electrical downtilt mechanisms.