

## New Dual Polarized UHF Omni-Antenna Now also full C-pol capable

Rohrdorf, 28th May 2020

by: Markus Gerl, Kathrein Broadcast GmbH

The over the air broadcast market has an increasing demand of dual polarized antenna systems. Especially in the US, where operators can use the vertical polarization as an additional propagation path, dual polarization antennas are highly desirable and sought after for NextGen TV. Up to now, there has not been an UHF plug & play dual polarized broadband omni antenna available in the market.

For horizontal polarized omni radiators, super-turnstile antennas are widely used. KATHREIN has a broad selection of available super-turnstile antennas - the plug & play types are easy to install and have a very low wind load. So, the question was, why not add a vertical polarized component to a super-turnstile based antenna? H-pol and V-pol should be fed separately, to adjust the resulting polarization arbitrary on customer requirements. Flexible mounting options will allow side mount or top mount installation.

A challenge was to get enough room inside the antenna for the additional dipoles. By shifting the super-turnstile elements and using compact, new developed dipoles for V-pol, this was achieved. Moreover the phase difference between V-pol and H-pol e-field should be constant over the frequency band. This is a point at which many antennas of competitors – already with directional patterns – are struggling. By feeding the V-pol dipoles via an electrical radiating field, this requirement was fulfilled. To ensure a broadband operation, couplers were used for stable phase conditions.

The test results of this antenna are impressive and show a superior VSWR and an excellent pattern. The first antenna systems were installed at the beginning of this year in the United States. The customers have been very happy with the coverage of the rock solid circular polarized signal of the new antenna systems. The circular polarized signal will improve coverage to mobile devices.



*in the picture:  
Markus Gerl, project manager  
for the US market in front of a  
series of new dual polarized  
omni antennas.  
Notice: the two separate inputs  
for H- and V-pol.*

*photo: © KATHREIN Broadcast GmbH | Archive*