

28 GHz, 24 dBi

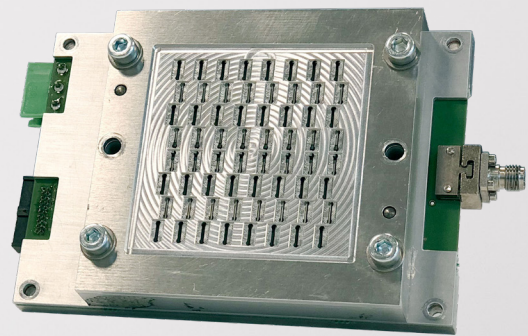
# 5G mmWave Antenna Subsystem

## High Performance Evaluation Platform

Gapwaves offers millimetre wave antenna platforms for use in the 28 GHz 5G frequency band, based on Gapwaves patented waveguide technology. Gapwaves waveguide antennas offer high performance due to intrinsic low losses while enabling multiple features such as built in filtering and excellent heat dissipation properties. With this platform Gapwaves aims to demonstrate performance and to encourage active collaboration with partners to develop next generation phased array antennas based on Gapwaves waveguide technology.

### Summary

- Increased cell range given by low loss high efficiency antenna
- Optimized cell coverage due to excellent beamforming performance
- Sustainable performance due to low power consumption
- Maximized component reliability enabled by excellent thermal performance
- Reduced complexity and highest design flexibility enabled by Gapwaves unique multilayer wave-guide based antenna building practice
- User friendly script-based control interface



### Gapwaves Technology

The innovation in our solutions lies in the patented Gapwaves waveguide technology based on an Artificial Magnetic Conductor (AMC) surface that enables propagation of electromagnetic waves in contactless artificial waveguide structures. This is the key to designing high performance waveguide antenna structures with a high degree of flexibility using well-established, high-volume production processes.

The technology has its most advantages within radar antennas for automotive, last mile delivery and traffic management, phased array antenna solutions for 5G mmWave and products for test & measurements.

### About Gapwaves

Gapwaves originates from research conducted at Chalmers University of Technology and was founded in 2011. Gapwaves vision is to be the most innovative provider of mmWave antenna systems and the preferred partner to those pioneering next generation wireless technology. By leveraging the disruptive Gapwaves technology we help pioneers within the telecom and radar antenna industry to create highly efficient mmWave antenna systems that contributes to re-defining everyday life. Gapwaves markets are e.g. mmWave in 5G telecom and radar antennas.

### Technical specifications

|                      |                        |
|----------------------|------------------------|
| Size                 | 110× 80 × 40mm         |
| Frequency range      | 26.5-29.5 GHz          |
| Number of beams      | 1 (analog beamforming) |
| Antenna gain         | > 24 dBi               |
| Elevation scan       | +/- 15°                |
| Elevation beam width | typ. 12°               |
| Azimuth scan         | +/-60°                 |
| Azimuth beam width   | typ. 12°               |
| EIRP @ 8 dB back-off | > 44 dBm               |
| Power consumption    | typ. 13 Watts          |
| Operation modes      | RX, TX or Idle         |
| Connector interfaces |                        |
| RF                   | 2.92 mm female coax    |
| Power                | 3.6 V, 5 V and ground  |
| Control              | USB                    |
| Control SW           | Python script based    |