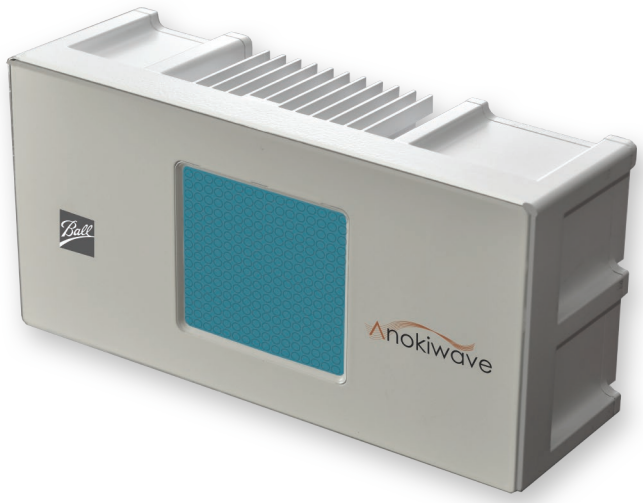
Advanced

Anokiwave
mmW Solutions. Enabling a new world

5G Active Antenna Innovator's Kit
AWA-0142-IK
Product Overview

AWA-0142 Performance Features

- 24.25 - 27.5 GHz operation
- 256 single beam or 4 x 64 MIMO operation
- Tx/Rx half duplex operation
- +60 dBmi/1 KW EIRP at P1dB
- -2 dB/K G/T (receiver sensitivity)
- Linear polarization
- 2D electronic beam scan; no moving parts
- 4 Pre-programmed beam states
  (Uniform Illumination; 25dB SLL Taylor taper;
  plus two broad beams for broadcast)
- Fast beam update rate
- Temperature sense telemetry
- Passive cooling option
- Suitable for outdoor deployment



Low Latency Beam Steering™ by Anokiwave

Innovator's Kit Contents

- AWA-0142 Active Antenna
- Power cord (country specific) with power supply block
- Ethernet cable
- Micro-USB cable
- Tripod with mount and adapter
- USB with GUI files and drivers

General Description

The AWA-0142 is a Tx/Rx active array for 5G wireless applications, developed using planar antenna technology in collaboration with Ball Aerospace. This approach results in a very low profile, lightweight unit. The surface mount assembled antenna board is based on Anokiwave's AWMF-0135 Silicon Quad Core IC and demonstrates the performance achievable using low power silicon integration and efficient antenna layout and design. Using the AWMF-0135, the antenna provides +60 dBmi (1 KW) EIRP. The electronic 2D beam steering is achieved using analog RF beam forming, with independent phase and gain control in both Tx and Rx operating modes. The AWA-0142 antenna leads the way in showing how 5G coverage can be rolled out by network operators using the mmW bands, with low power footprint and high energy efficiency, while meeting key operating specifications for data rate, latency, coverage, and reliability.

800.348.5580 / 630.208.2200 SALES@RELLPOWER.COM RELLPOWER.COM

Richardson Electronics
POWER & MICROWAVE TECHNOLOGIES

RICHARDSON ELECTRONICS, LTD.
40W267 Keslinger Road / P.O. Box 393
LaFox, IL 60147-0393

5G Active Antenna Innovator's Kit

Product Overview

AWA-0142-IK

Overview

The AWA-0142 from Anokiwave is a 24.25 - 27.5 GHz, 256 element active electronically scanned antenna for 5G mm-wave communication applications. It is designed to take advantage of the rapid progress in recent developments of highly integrated semiconductor solutions for active antenna applications.

Next generation telecommunications is moving to mm-wave frequencies to take advantage of the increased spectrum availability and highly focused radiated energy, where rapid beam steering and pointing are needed to overcome increased path loss and enable the high data-rate multi-user experience. The AWA-0142 represents the first commercially available 256-element phased-array at 24.25 - 27.5 GHz to enable the development of and measurement of radio links and channel models, as well as for rapid prototyping and testing of electronically beam-steered radio links through low-latency beam update rates that meet the 5G requirements for sub-symbol interval update rates.

The AWA-0142 includes an integrated controller that can steer the single-beam array to a predetermined position within a wide scan volume with minimal latency and system sensitivity, as well as facilitating multiple programmable beam widths. It can be used as a single 256 element array or as a 4 x 64 MIMO system.

Parameter	Typical Performance	Units
General		
Frequency	24.25 - 27.5	GHz
EIRP (at P1dB)	+60*	dBmi
G/T	-2*	dB/K
Effective Rx NF	5	dB
Polarization	Horizontal Linear	-
Electronic Beam Scan	+/- 60 deg 2D	-
Number Beams	Single radiation beam	256 Element Mode
	Up to four radiation beams	64 Element Mode
Beam Update Rate	13	uS
RF Mode of Operation	Half duplex (TDD)	-
RF Interface	2.92 mm coaxial connector (female)	x 5
Max Power	70	W DC
Size	26 x 15 x 4	cm
Weight	3	kg
Supply Voltage	Single 12 or 18	VDC
Control Interfaces	TBD	
Additional Features		
Weather sealed for outdoor deployment		
Electronic, analog beam forming		
Temperature sense telemetry		
4 Pre-programmed beam states: Uniform Illumination; 25dB SLL Taylor taper;		
256 single element or 4 x 64 MIMO operation		

*Indicates measured data at boresight at 26 GHz

Advantages

All silicon electronically steered mmW phased arrays have numerous advantages.

- Improved SNR
- Increased data rate and capacity
- Reduced interference
- Supports mmW channel sounding
- Improved wireless network power efficiency
- Anokiwave's Active Antenna IC technology enables planar active antenna solutions with low latency beam steering[tm]

800.348.5580 / 630.208.2200 SALES@RELLPOWER.COM RELLPOWER.COM

Richardson Electronics
POWER & MICROWAVE TECHNOLOGIES

RICHARDSON ELECTRONICS, LTD.
40W267 Keslinger Road / P.O. Box 393
LaFox, IL 60147-0393