



Marketing Department
Product Specification

Product Name: X-band TDD Phased Array Antenna

X-band TDD Phased Array Antenna

1 Product Description

This module is a X-band phased array antenna capable of two-dimensional expansion. The array consists of 256 elements (16×16) and features low-noise amplification and amplitude-phase control in the receiving channel, with two-dimensional sum and difference beam outputs, and 16 single-row element combined output. The transmitting channel integrates high-power amplification and power synthesis functions.

2 Application Scenarios

Ground, vehicle and other application scenarios.

3 Product characteristics

- 1) Supports two-dimensional expansion;
- 2) High G/T value, High EIRP, Low power consumption;
- 3) Compact size and lightweight design;
- 4) Supports sub-subarray weighting;
- 5) Capable of sub-subarray two-dimensional sum and difference beamforming;
- 6) Single-row element output

4 Technical parameters

S/N	Items	Parameters	Remarks
1	Working Frequency	8GHz-12GHz	8.5-9.6GHz to ensure specifications; other frequency bands from 8GHz to 12GHz are available with derated performance.
2	Elements	16 × 16=256	
3	Scanning Range	±45° @9.6GHz	
4	Phase Shifter	6 bit, 360°	
5	Layout	Rectangular Array	

6	Gain	27.5dB (unweighted)	Normal direction
7	Scanning Loss	Off-axis angle 30°: $\leq 2\text{dB}$;	
		Off-axis angle 45°: $\leq 4.5\text{dB}$;	
8	Beamwidth	$6^\circ \pm 0.5^\circ$	Normal direction
9	Transmit Output Power	$\geq 27\text{dBm}$	Equivalent to EIRP tested
10	EIRP	$\geq 80\text{dBm}$ @9GHz	Normal direction
11	Subarray Input Power	$0\text{dBm} \pm 2\text{dB}$	
12	Noise Factor	$\leq 3.5\text{dB}$ @maximum gain	Equivalent to G/T tested
13	G/T	$\geq 0\text{dB/K}$ @9GHz	Normal direction
14	Receive Gain	$22\text{dB} \pm 2\text{dB}$	
15	Polarization	Vertical	
16	Element Type	Surface Mounted	
17	Element Layout	Rectangular Arrangement	
18	Element Spacing	18mm	
19	Attenuation Control	31.5dB	6-bit attenuator, step 0.5dB;
20	Element Input Withstand Power	20dBm	
21	Beam Switching Latch Time	$\leq 10\mu\text{s}$	
22	Beam Switching Interval	$\leq 100\mu\text{s}$	
23	RF Interface	SSMA-K * 19	
24	Control and Power Interface	J30J-Z	
25	Dimensions	$< 288\text{mm} \times 288\text{mm} \times 37\text{mm}$	
26	Weight	$\leq 5.5\text{kg}$	
27	Input Voltage	DC +24V~+32V	
28	Power Consumption	$\leq 170\text{W}$ (10% duty cycle)	Max. pulse width 500us Max. duty cycle 30%
29	Input Voltage Ripple	$\leq 200\text{mV}$ (Vp-p)	
30	Working Temperature	$-40^\circ\text{C} \sim +70^\circ\text{C}$	
31	Storage Temperature	$-40^\circ\text{C} \sim +85^\circ\text{C}$	

5 Product Photo

