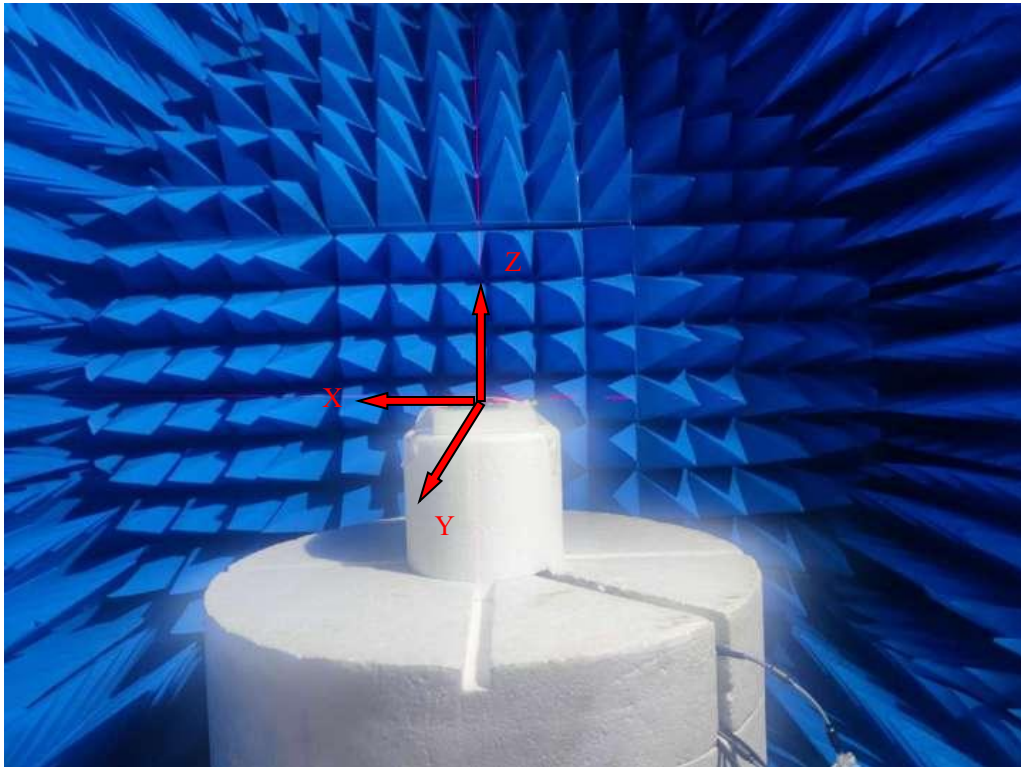


Test Report of On-board PIFA Antenna in 2.4G-2.48G Frequency Band

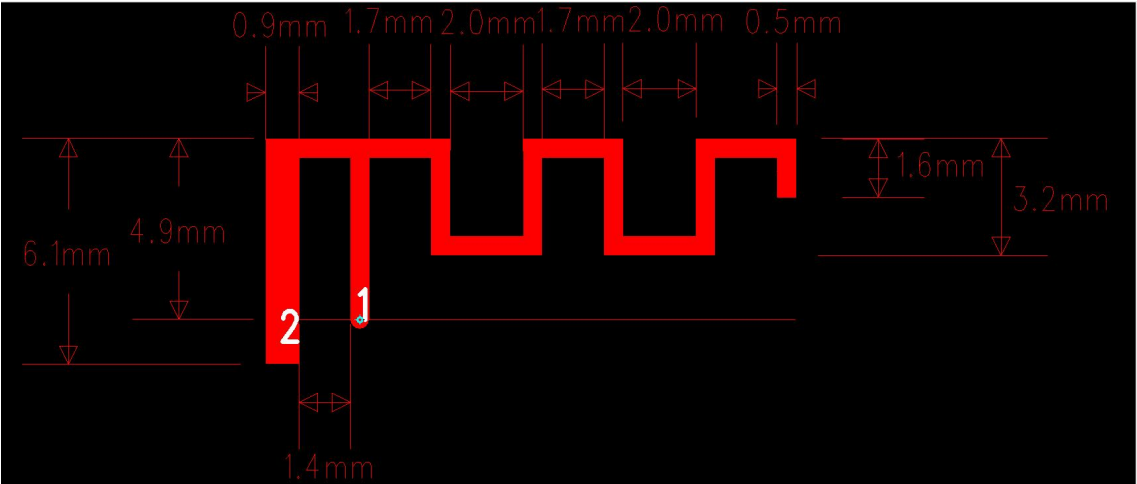
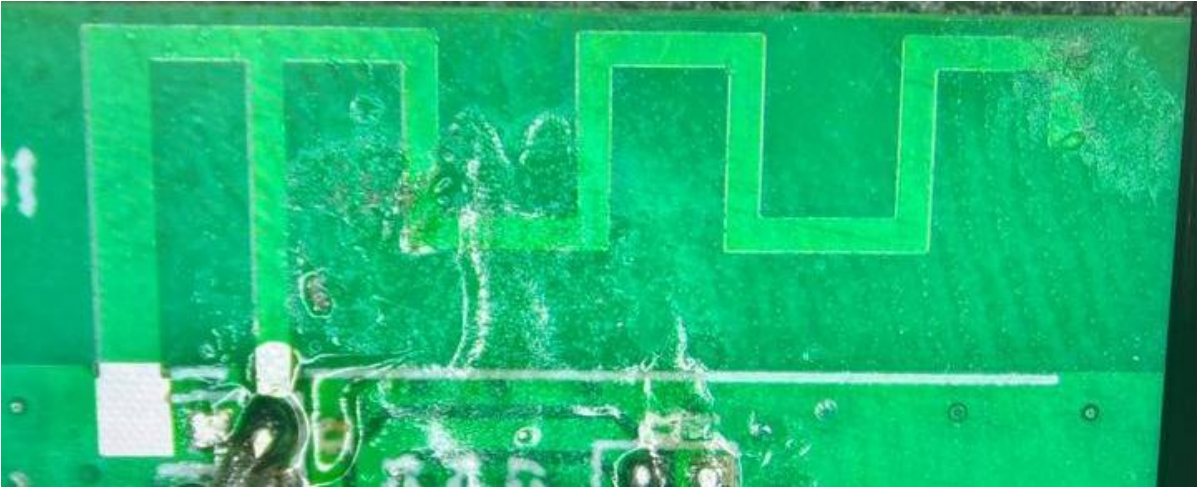
SPECIFICATIONS	
Frequency (MHz)	2400-2480
Peak Gain (dBi)	2.499
Average Gain (dBi)	>-4
VSWR	<3.2
Impedance (Ω)	50 Ω
Antenna Type	Plannar Inverted F Antenna on board
Polarization	Linear

Test environment: Zhongke Guoji anechoic Chamber Test System



Type of antenna	Onboard antenna module F type
manufacturer	Topway EM Enterprise Ltd.
address	8F., Block B, Building 6, Baoneng Science and technology park, Qingxiang RD., Qinghu Industrial Park, Longhua New District, Shenzhen, China 518109

The physical object and dimensions of the antenna



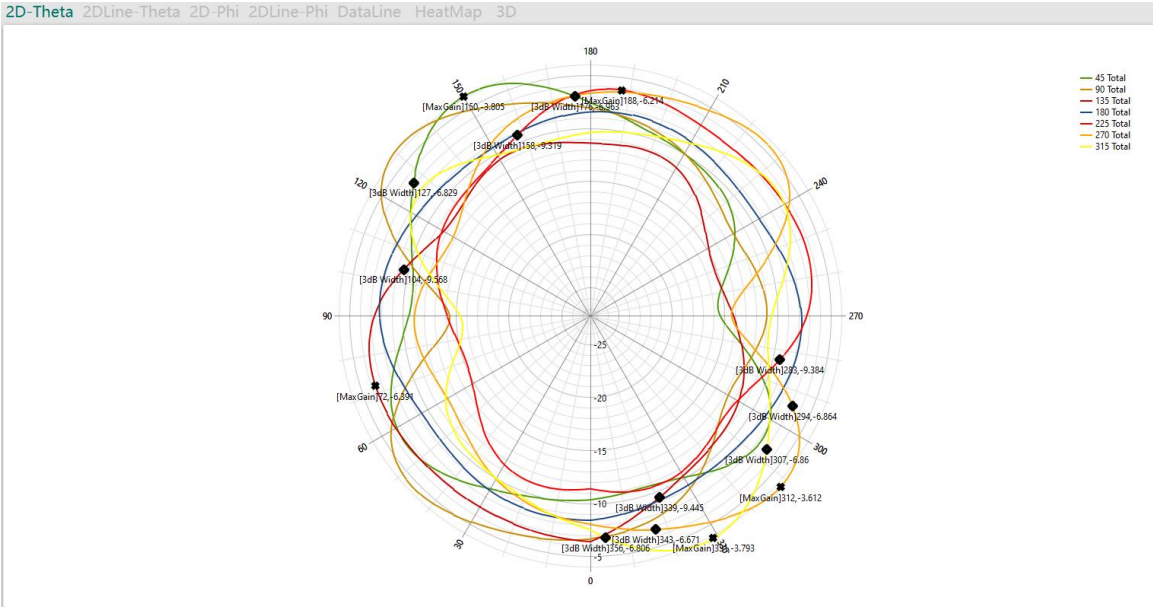
Antenna passive S parameters:
Standing Wave ratio (VSWR), ReturnLoss and Smith
circle chart



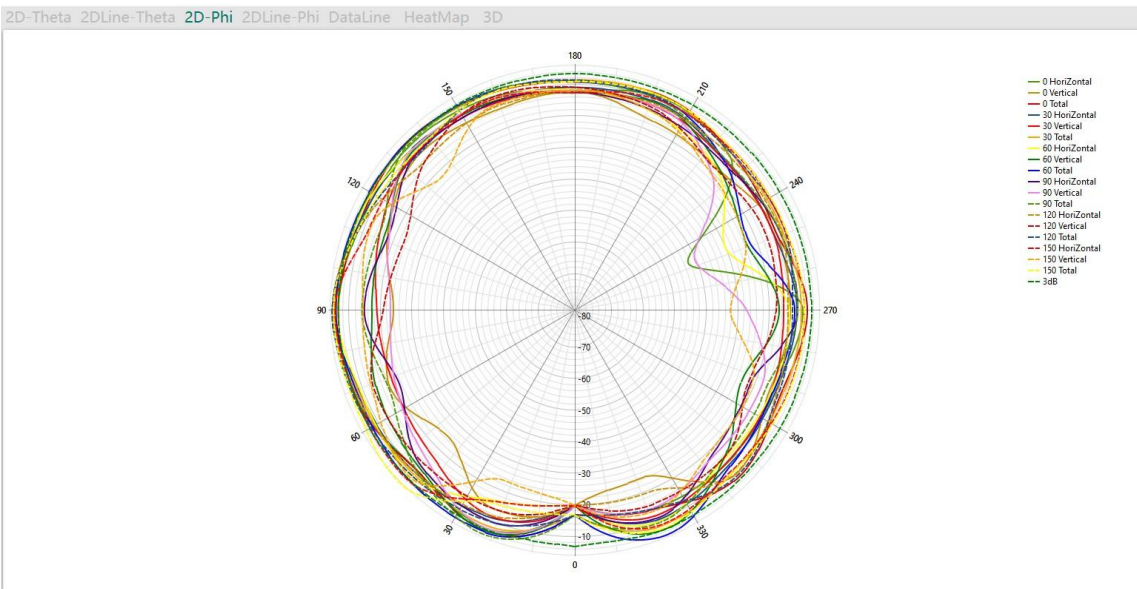
Antenna efficiency and
gain

Frequency (MHz)	Gain (dBi)	Efficiency (%)	AverageGain (dBi)	Efficiency (dB)
2400	1.433	59.329%	-2.717	-2.267
2410	0.927	51.861%	-3.416	-2.852
2420	0.829	52.112%	-3.166	-2.831
2430	0.881	49.299%	-3.258	-3.072
2440	1.192	50.672%	-3.144	-2.952
2450	1.688	53.067%	-2.735	-2.752
2460	2.194	59.423%	-2.276	-2.260
2470	2.118	56.680%	-2.438	-2.466
2480	2.499	61.727%	-2.112	-2.095
Average	1.529	54.908%	-2.806	-2.616
Peak	2.499	61.727%	-2.112	-2.095

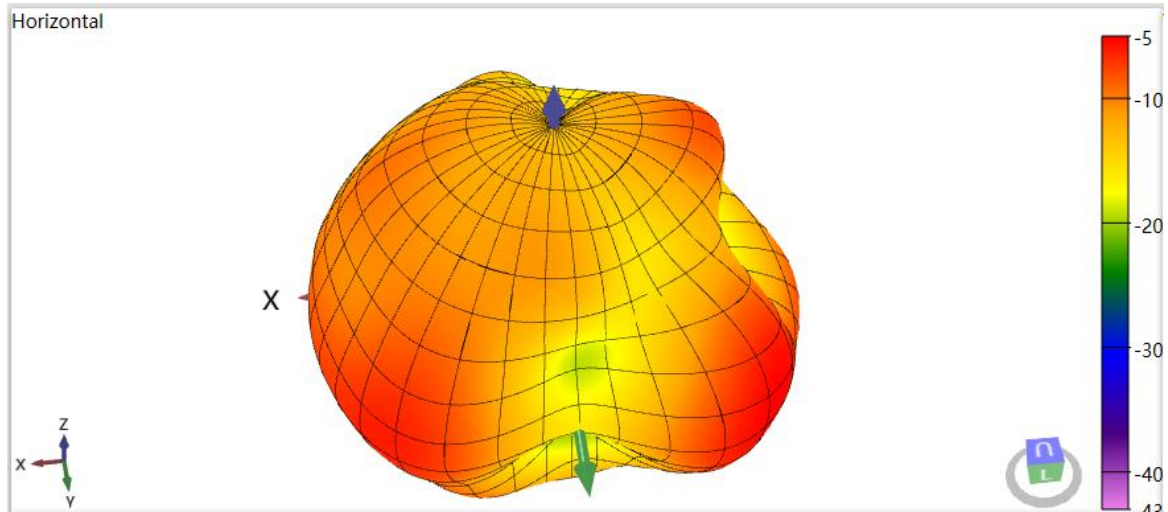
2440MHz 2D-Theta Pattern



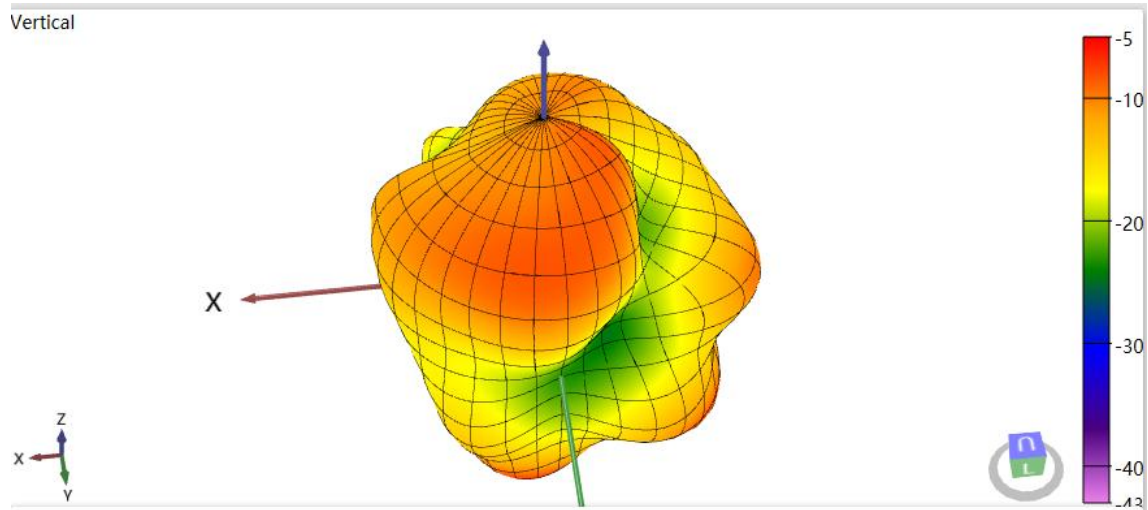
2440MHz 2D-Phi Pattern



2440MHz 3D-Horizontal Pattern



2440MHz 3D-Vertical Pattern



2440MHz 3D-Total Pattern

