

The background of the entire slide is a detailed, high-resolution image of a printed circuit board (PCB). The PCB is populated with various electronic components, including a large multi-pin connector at the top, several integrated circuits (chips) of different shapes and sizes, and a complex network of fine, light-colored traces (copper or gold) that connect the components. The overall color scheme is a mix of dark blues, greys, and metallic tones, giving it a technical and industrial feel. The text is overlaid on this background, with some elements like the orange line and the Chinese text providing contrast.

2.4GHz Remote Control PCB Antenna Specification

SHENZHEN SHINETEK TECHNOLOGY

深圳芯耀科技

High-Efficiency, Compact On-Board Antenna Solutions.

2.4G ISM Band

Optimized specifically for remote control and IoT telemetry.

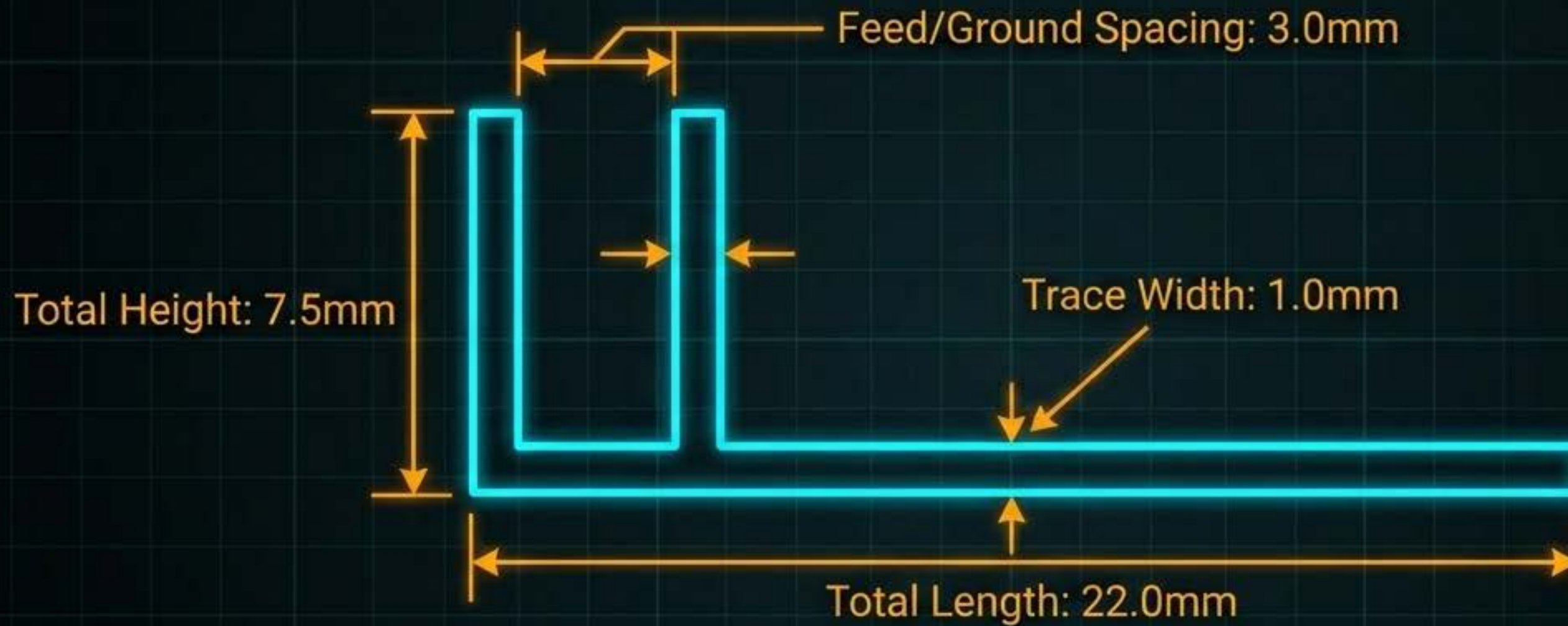
22.0mm × 7.5mm

Highly compact, L-shaped trace footprint minimizing board real estate.

1.50 dBi
Peak Gain

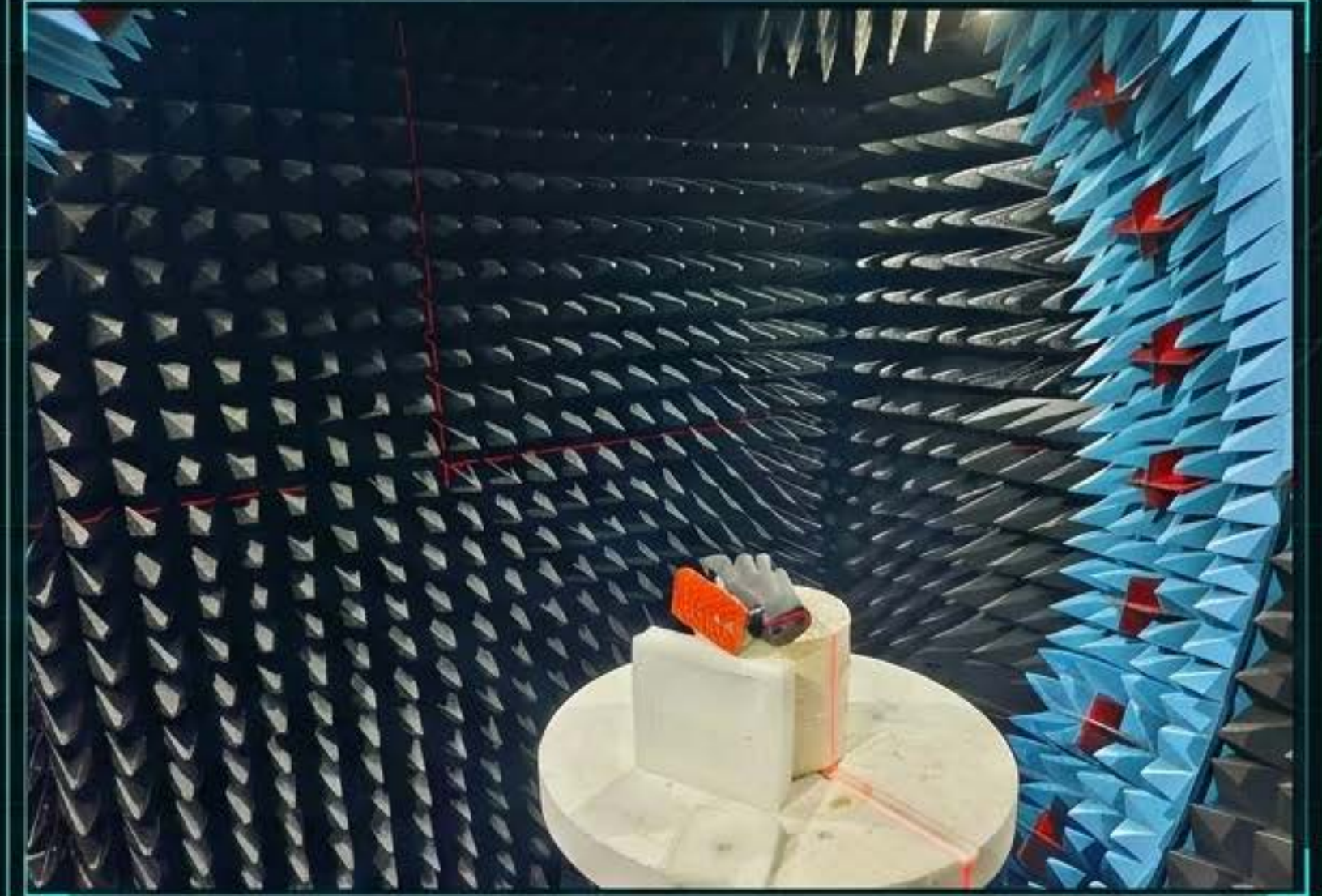
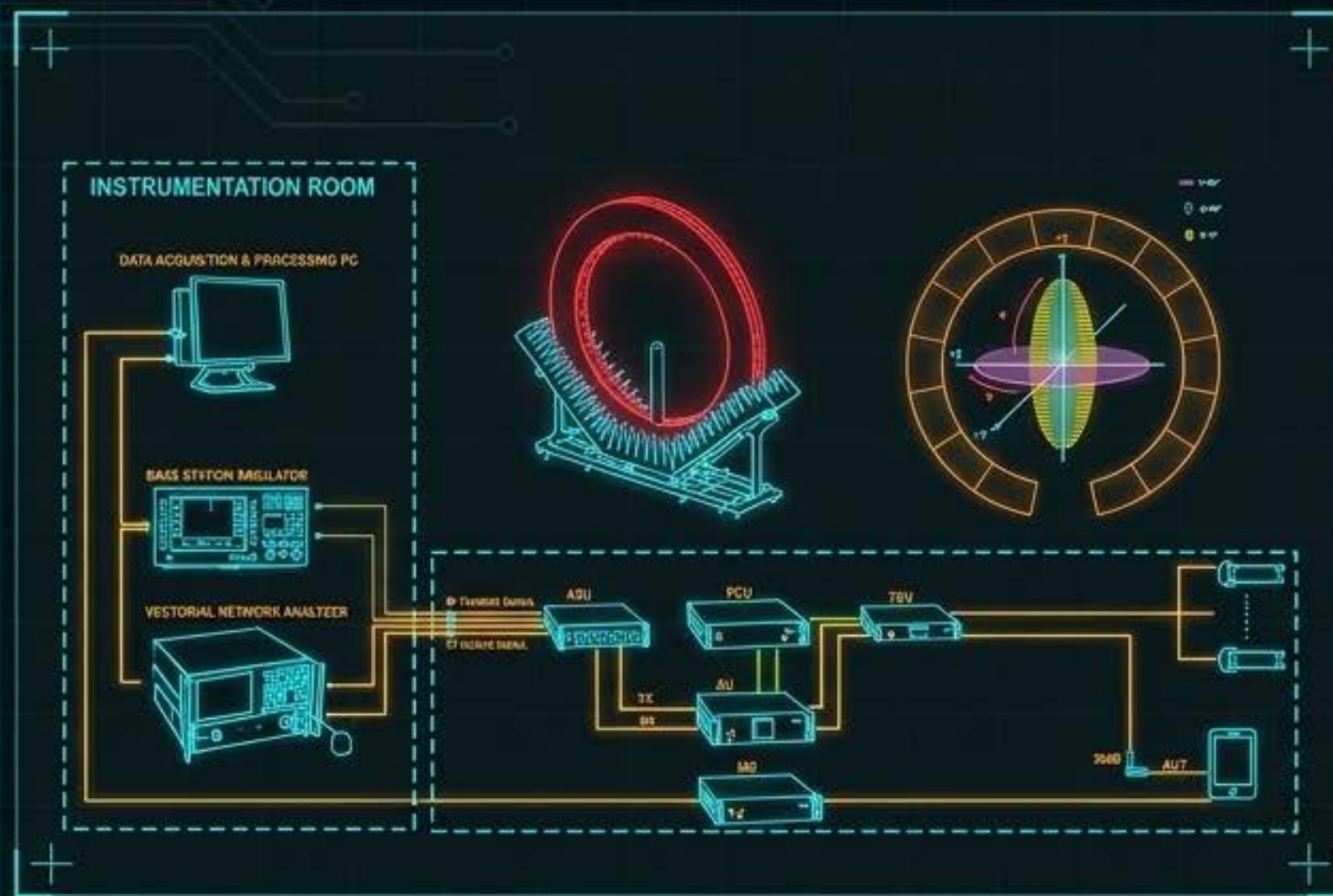
Consistent >50% efficiency across the operating band, ensuring robust RF penetration.

Precision Physical Layout



Minimal clearance area required, ensuring flexible routing for high-density controller boards.

Rigorous OTA Measurement Environment

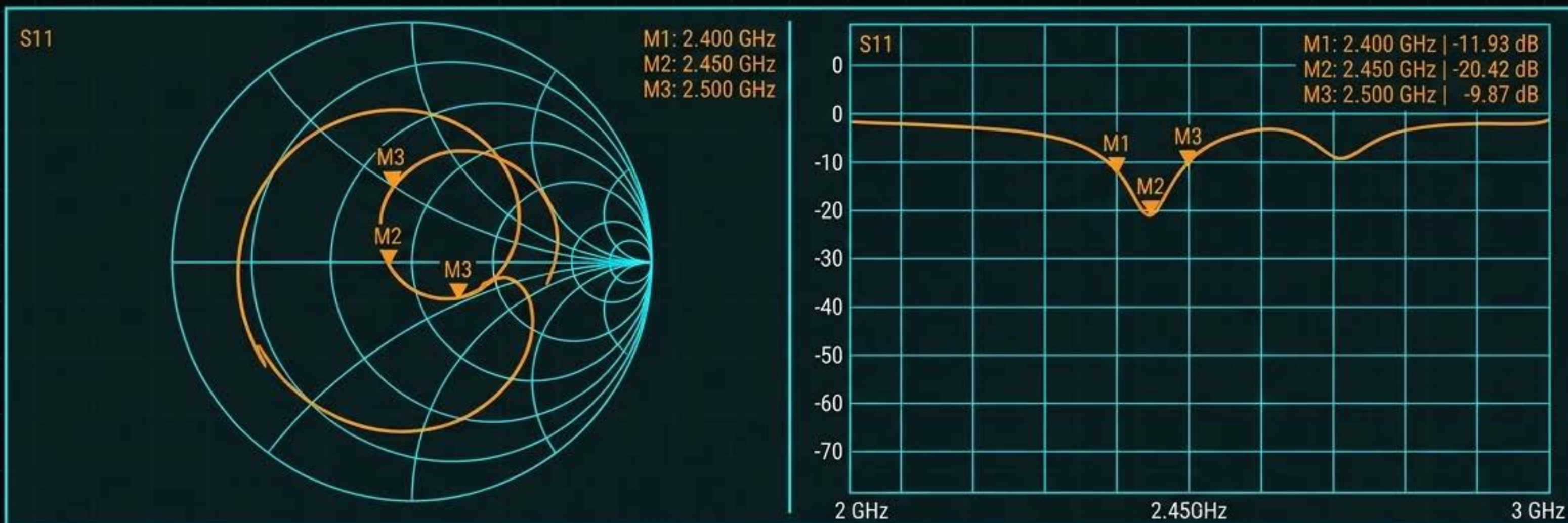


Test System: SY-24 Multi-Probe OTA Measurement System (0.4-8.5GHz)

Instrumentation: Agilent E5071B Network Analyzer / R&S CMW500

Environment: Fully Anechoic Chamber ensuring zero RF interference and precise 3D spatial mapping.

Stable Transmission: Return Loss & VSWR



Data Extraction Matrix

@ 2.400 GHz (M1):

S11 = -11.93 dB | VSWR = 1.67

@ 2.450 GHz (M2):

S11 = -20.42 dB | VSWR = 1.21

@ 2.500 GHz (M3):

S11 = -9.87 dB | VSWR = 1.94

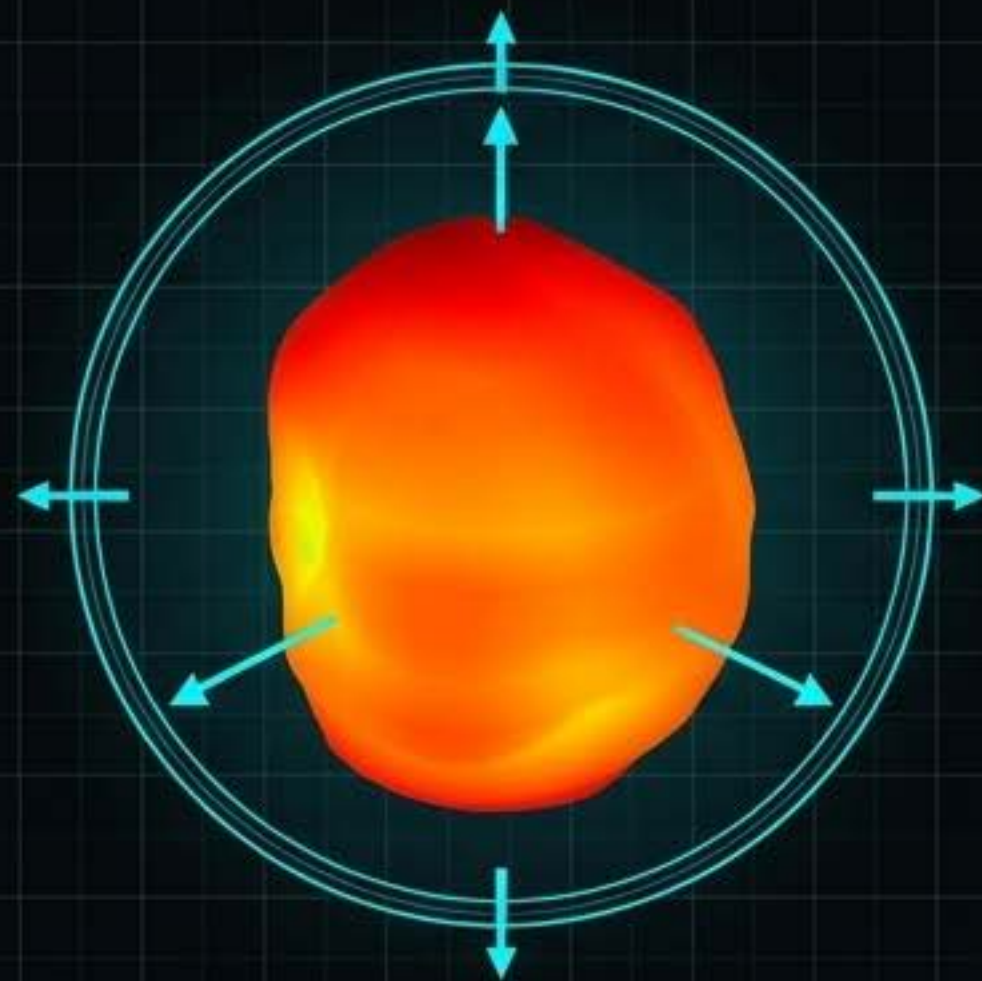
S11 parameters demonstrate deep resonance centered perfectly within the operating band (2.45GHz), paired with optimal impedance matching on the Smith Chart to eliminate signal reflection and maximize power transfer.

Passive Test: Efficiency & Gain Optimization

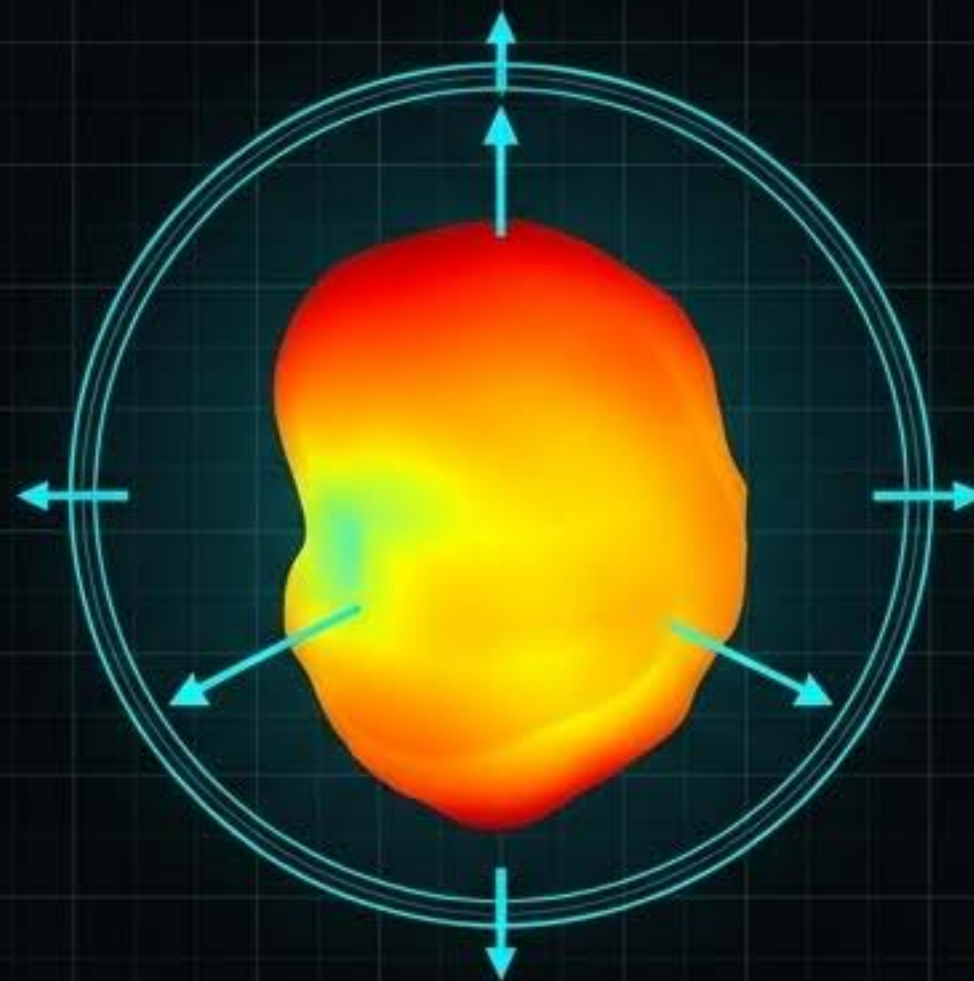
Peak Gain: 1.50 dBi (@ 2440MHz) | Peak Efficiency: 55.82% (@ 2410MHz)

Frequency (MHz)	Gain (dBi)	Efficiency (%)	Efficiency (dB)
2400.00	1.07	53.40	-2.72
2410.00	1.03	55.82 Peak Efficiency	-2.53
2440.00	1.50 Peak Gain	53.31	-2.73
2450.00	1.31	53.50	-2.72
2500.00	0.38	48.48	-3.14

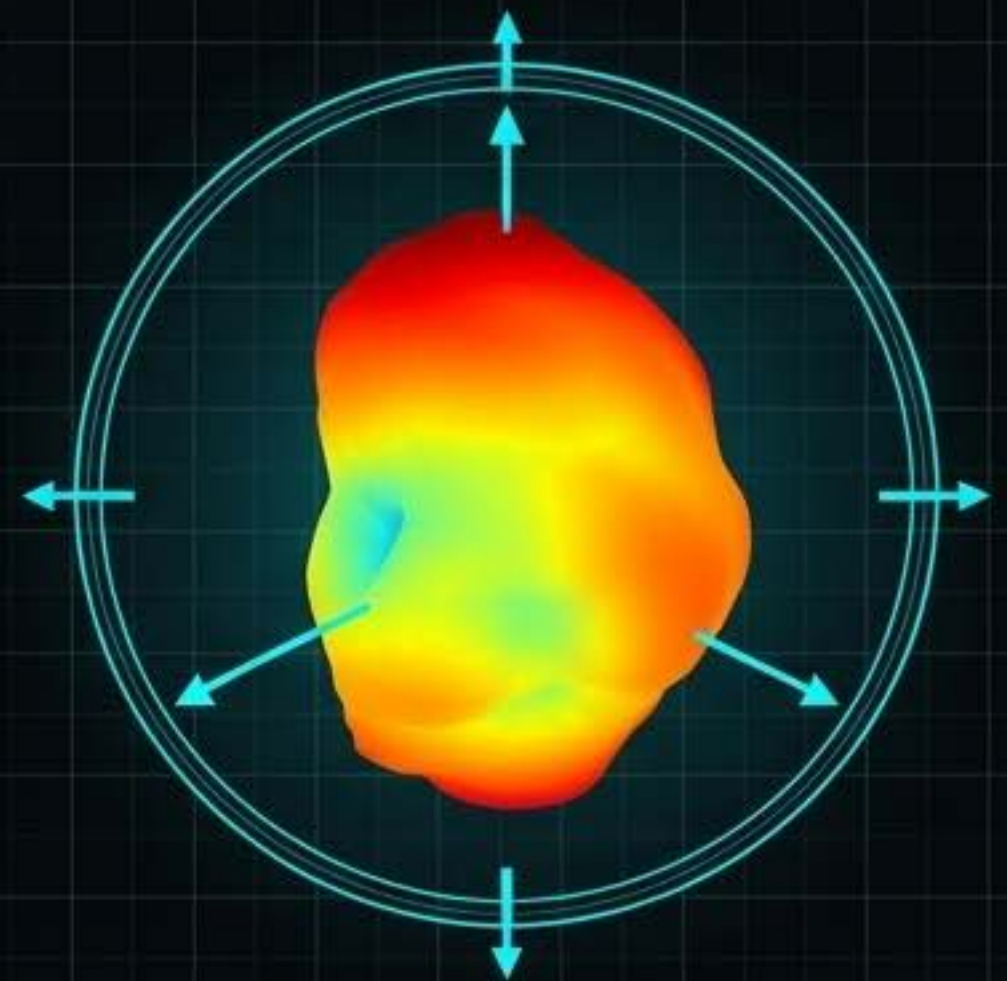
Omnidirectional 3D Radiation Patterns



2400 MHz



2450 MHz



2500 MHz

The 3D thermal maps display uniform, class-leading omnidirectional characteristics. This guarantees reliable telemetry for remote control applications, preventing signal drop-out regardless of user grip angle or dynamic device orientation.

2D Directional Diagram Matrix

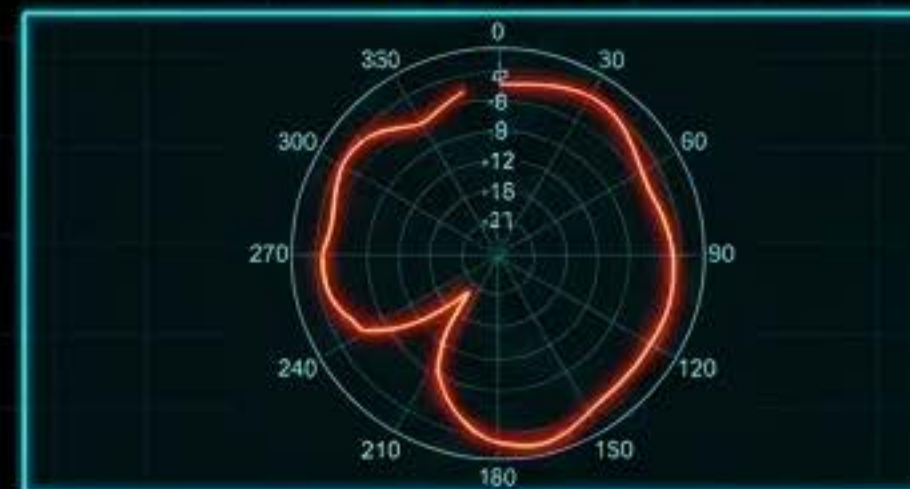
2400 MHz



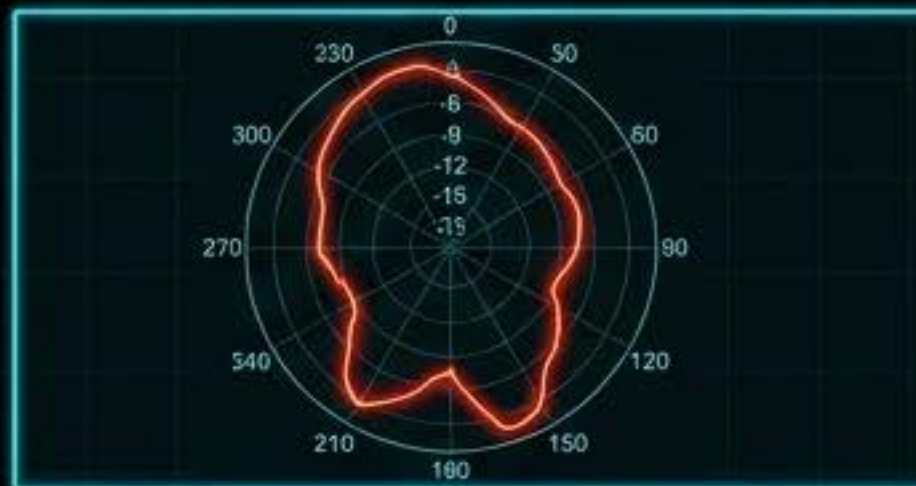
Phi=90°



Theta=90°



2450 MHz

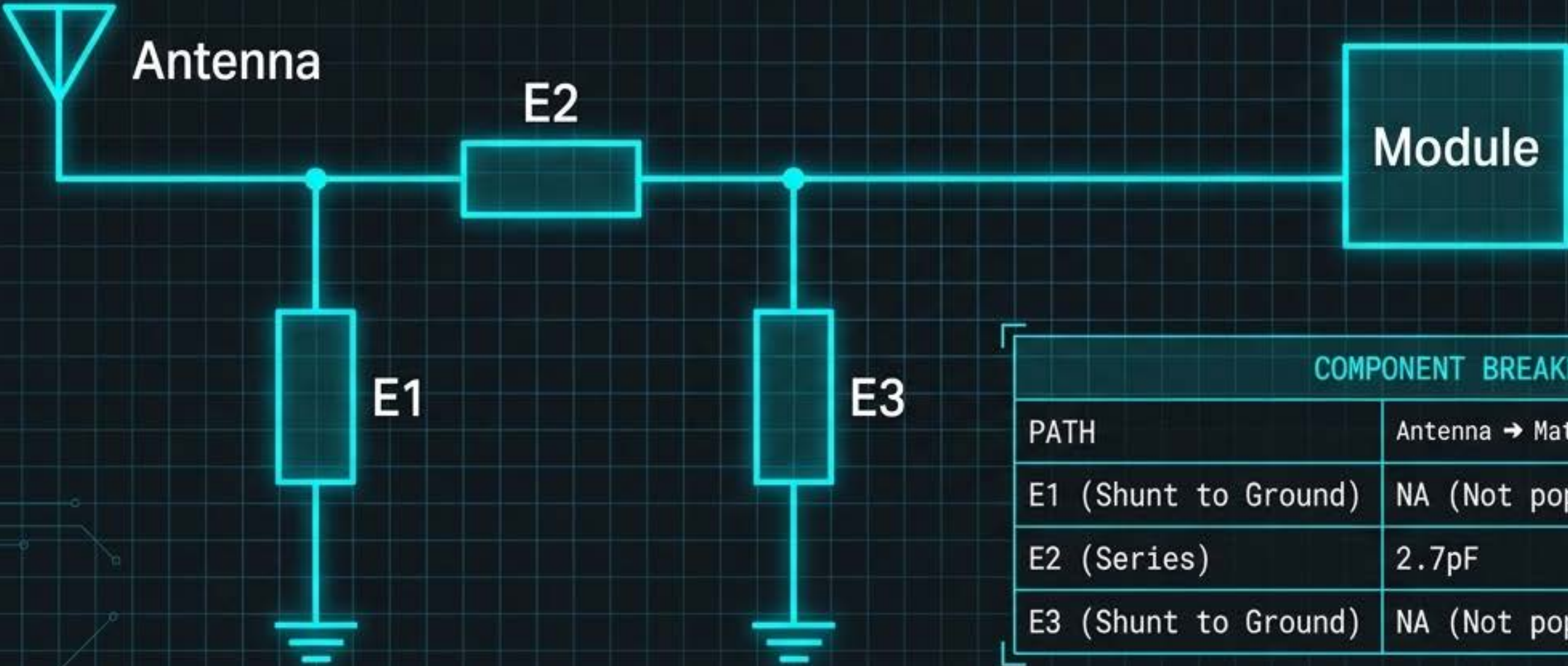


2500 MHz



Uniform spatial coverage validated systematically across all primary axes,
confirming zero severe nulls in the operatic

Hardware Integration: Recommended Matching Circuit



Optimized matching values provided for immediate schematic implementation. Reduces required engineering tuning time and accelerates time-to-market.

Core Technical & Physical Parameters

[Mechanical & Physical]

Type:	Dimensions:	Trace Width:	Trace Spacing:
Onboard PCB Antenna (L-Shape)	22.0mm × 7.5mm	1.0mm	3.0mm

[RF & Electrical]

Frequency:	Peak Gain:	Peak Efficiency:	Radiation Type:	Matching Network:
2.4GHz ISM Band (2400-2500MHz)	1.50 dBi	55.82%	Omnidirectional	Series 2.7pF

SHENZHEN SHINETEK TECHNOLOGY

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Contact us for complete engineering Gerber files and technical integration guidance.