

## MICROWAVE NETWORK DESIGN SERVICES

### OUR CORE SERVICES

#### 1. Network Planning & Design

- Comprehensive site surveys and path analysis
- Frequency planning and spectrum optimization
- Link budget calculations and performance modeling
- Network topology design and optimization
- Interference analysis and mitigation strategies

#### 2. Microwave Link Engineering

- Point-to-point and point-to-multipoint solutions
- Licensed and unlicensed band expertise (6 GHz to 86 GHz)
- Capacity planning from 10 Mbps to multi-gigabit links
- Weather impact analysis and fade margin calculations
- Redundancy and resilience design

#### 3. Regulatory & Compliance

- Frequency licensing coordination and application support
- Regulatory compliance documentation
- International standards adherence (ITU, ETSI, FCC)
- Spectrum management consulting
- Cross-border frequency coordination

#### 4. Implementation Support

- Detailed technical documentation and specifications
- Equipment selection and vendor evaluation
- Installation supervision and quality assurance
- Network commissioning and acceptance testing
- Performance optimization and troubleshooting

### INDUSTRIES WE SERVE

#### Telecommunications & Mobile Operators

Design and optimize 4G/5G backhaul networks, inter-cell site connectivity, core network links, and rural coverage expansion. We understand the demanding requirements of mobile operators and deliver solutions that support high-capacity, low-latency communications.

#### Internet Service Providers (ISPs)

Enable last-mile connectivity, backbone infrastructure, fixed wireless access networks, and rural broadband deployment. Our designs help ISPs expand coverage economically while maintaining service quality.

#### Utilities & Energy Sector

Connect power grid monitoring systems, SCADA networks, smart grid communications, pipeline monitoring, substation interconnections, and renewable energy sites (wind farms, solar plants). Ensure reliable communication for critical infrastructure.

## **Transportation & Logistics**

Support railway communication systems, highway monitoring networks, port and airport communications, traffic management systems, and metro/transit authority networks with resilient wireless connectivity.

## **Banking & Finance**

Provide reliable connectivity for branch interconnections, ATM networks, data center redundancy links, and high-frequency trading networks where uptime is critical.

## **WHY CHOOSE OUR MICROWAVE SOLUTIONS**

- ✓ **Proven Multi-Industry Expertise** - Deep experience across telecommunications, utilities, government, enterprise, and specialized sectors worldwide
- ✓ **Cost-Effective Solutions** - Optimized designs that maximize ROI while meeting performance requirements
- ✓ **Future-Proof Designs** - Scalable infrastructure supporting bandwidth growth and evolving technology standards
- ✓ **All-Weather Reliability** - Comprehensive fade margin analysis ensuring performance in rain, fog, and extreme conditions
- ✓ **Rapid Deployment** - Streamlined design processes and project management for accelerated implementation timelines
- ✓ **Comprehensive Support** - From initial planning through commissioning and ongoing optimization
- ✓ **Regulatory Navigation** - Expert guidance through complex licensing and compliance requirements across jurisdictions
- ✓ **Vendor-Neutral Approach** - Objective equipment recommendations based on your specific technical and budgetary needs

## **OUR DESIGN APPROACH**

### **1. Requirements Analysis**

We begin by understanding your connectivity requirements, bandwidth needs, coverage areas, budget constraints, and regulatory environment.

### **2. Site Assessment**

Comprehensive surveys including terrain analysis, line-of-sight verification, interference studies, and environmental considerations.

### **3. Network Design**

Detailed engineering including frequency planning, link budget analysis, capacity modeling, redundancy design, and equipment specifications.

### **4. Documentation**

Complete technical deliverables including network diagrams, equipment lists, installation specifications, frequency applications, and test procedures.

## **5. Implementation Support**

Ongoing assistance during procurement, installation, commissioning, and optimization phases.

## **WHAT YOU GET**

### **Comprehensive Design Package:**

- Network topology diagrams
- Detailed link budget calculations
- Frequency and channel plans
- Equipment specifications and bill of materials
- Installation and mounting specifications
- Path profile analysis with Fresnel zone clearance
- Interference analysis reports
- Regulatory documentation and frequency applications
- Project timeline and implementation plan
- Testing and commissioning procedures