RADWIN 5000 JET NLOS

RADWIN 5000 JET NLOS solution provides smart beamforming antennas at both the Base Station and Subscriber Unit side to assure superior functionality in tough urban environments with obstructions to Line-of-Sight, high radio interference and severe dynamic multipath conditions

RADWIN 5000 JET NLOS provides the **ideal** Point-to-Point and Point-to-MultiPoint **solution** for high capacity NLOS connectivity by delivering smart beamforming antennas at both the Base Station and Subscriber Unit side.

Delivering up to 350Mbps and leveraging upon RADWIN's SMART BEAMFORMING ANTENNA technology and **FULLY AUTOMATIC RADIO ALIGNMENT** capabilities, JET NLOS dramatically simplifies installations and shortens service delivery lead times, even in the toughest NLOS scenarios.

RADWIN 5000 JET NLOS beamforming solution has been **chosen and deployed by Tier 1 Carriers in the US and Europe for NLOS Small Cell Backhaul**.

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JET NLOS HIGHLIGHTS

Powerful Base Station for Bandwidth Demanding Applications

- Single hardware for Point-to-MultiPoint and Point-to-Point architectures
- Integral smart beamforming antenna for enhanced performance (e.g., advanced multipath aggregation, interference mitigation by spatial filtering and antenna auto-alignment)
- Optimized air interface: delivering up 350Mbps, low latency and jitter in NLOS conditions
- Guaranteed SLA per end-user

High Capacity Subscriber Units

- Integral smart beamforming antenna for enhanced performance as per base station
- Optimized air-interface

Multi-band Radio

- 3.3-3.8 / 3.65 GHz in the same unit
- 5.1-5.8 GHz in the same unit

RADWIN DISRUPTIVE BEAMFORMING ANTENNA TECHNOLOGY

RADWIN Beamforming Highlights

- Small form factor radios with integrated beamforming antenna
- Antenna steering for best link performance over a 90° sector
- Effective narrow beam of 8° @ 5.xGHz, 15° @ 3.xGHz
- OFDM, MIMO 2x2 / 3x3 / diversity
- Advanced multipath aggregation

RADWIN Beamforming Benefits

- Industry's highest throughput with lowest latency in challenging NLOS
- Fully automated alignment and one man installation in minutes, even for highly challenging NLOS scenarios
- High interference immunity (leveraging directional narrow beam antenna, spatial filtering and auto-realignment)
- Enhanced link robustness due to advanced multipath aggregation
- Optimized frequency reuse

JET NLOS PLANNING & DEPLOYMENT TOOLS

RADWIN 5000 JET NLOS offers powerful deployment tools that reduce network rollout, lower costs and eliminate site acquisition risks. JET NLOS tools include:

- WINTouch, a simple and user friendly application that runs on a PC or tablet to support the technician throughout the installation phase
- Site Survey Kit that quickly and accurately predicts link performance in real-time conditions

With RADWIN's tools, Service Providers can:

- Accurately predict performance in all NLOS conditions
- Detect and overcome challenges to NLOS transmission (e.g. line-of-sight obstacles, interference)
- Simplify the installation process and reduce associated costs
- Speed up network rollout
- Benefit from lowest total cost of ownership



RADWIN 5000 JET APPLICATIONS

- NLOS Mobile Backhaul
- NLOS Broadband Wireless Access
- Temporary Mobile Backhaul
- NLOS HD Video Surveillance
- NLOS Small Cell Backhaul

SOLUTION SPECIFICATIONS

CONFIGURATION	
Architecture	Outdoor Unit with integrated smart beamforming antenna and with embedded GPS
Configuration	Point-to-Point and Point-to-Multipoint
PoE to ODU Interface	Outdoor CAT-5e; Maximum cable length: 100m for 10/100BaseT and 75m for 1000BaseT
RADIO	
Maximum Air Capacity	Up to 450Mbps @ 40MHz for single carrier
Maximum Throughput	Up to 350Mbps @ 40MHz for single carrier
Antenna	Smart beamforming antenna
MIMO\Diversity	2x2/3x3/Diversity
Radio Carriers	Single carrier
Air Interface	Unique proprietary air interface (MAC)- ensuring robust performance in NLOS and severe multipath conditions
Channel Bandwidth	Configurable: 10, 20 and 40 MHz
Modulation	MIMO-OFDM (BPSK/QPSK/16QAM/64QAM)
Error Correction	FEC k = 1/2, 2/3, 3/4, 5/6
Maximum Tx Power	25dBm @ 5.x GHz, 23dBm@ 3.x GHz (in all modulation schemes)
Bandwidth Allocation	Static and dynamic
Adaptive Modulation & Coding	Supported
DFS	Supported
Latency (one direction)	Typical: <3msec; Maximum: <5msec
Jitter	< 1msec
Automatic Channel Selection	Supported
Spectrum Viewer	Supported
Duplex Technology	TDD
Encryption	AES 128
TDD Intra & Inter Site Synchro-nization	In band synchronization over Ethernet or by using the integrated GPS.
Timing Transport	1588v2-TC, Sync-E
Remote Units	Up to 4 working units in an NLOS environment
NETWORKING	
Ethernet Interface	Two ports, supporting 100/1000BaseT. 1st port: Data and PoE. 2nd port: Data (HSU), Management (HBS)
Layer 2	Bridging learning of 5K MAC addresses
QoS	Packet classification to 4 queues according to 802.1p and Diffserv, TTL, Strict priority. Dynamic scheduling according to air interface changes
VLAN	Supported 802.1Q, 802.1P, QinQ
MANAGEMENT & INSTALLATION	
Management Application	RADWIN Manager
Protocol	SNMPv1, SNMPv3, Telnet, HTTP, IPv4/IPv6, SFTP, SSH
NMS Application	RNMS or integration with Network NMS via standard MIBS
Installation	Automatic antenna alignment. Advanced NLOS planning and deployment tools

POWER	
Power Feeding	Provided over PoE interface
Maximum Power Consumption (3.x, 5.xGHz)	<30W
MECHANICAL	
Dimensions & Weight	Dimensions: 35.6(w) x 9.4(d) x 22.5(h) . Weight: 3.3Kg/ 7.28 lbs
ENVIRONMENTAL	
Operating Temperatures	-35°C to 60°C /-31°F to 140°F
Humidity	100% condensing, IP67
SUPPORTED FREQUENCY BANDS	
5.x GHz	5.150-5.350 (Universal), 5.250-5.350 (FCC) 5.470-5.725 (ETSI, FCC, Universal), 5.725-5.850 (FCC, Universal), 5.725-5.875 (ETSI)
3.x GHz	3.300-3.800 (Universal), 3.410-3.700 (ETSI), 3.650-3.700 (IC,FCC), 5.250-5.350 (FCC)
RADIO REGULATIONS	
FCC/IC	47CFR Part 15 Subpart C and Subpart E. 47CFR Part 90 Subpart Z – Restricted & Unrestricted modes RSS-210 issue 8, RSS-192 issue 3, RSS-197 issue 1-Unrestricted Mode
ETSI	3.x GHz: EN302-326-2. 5.x GHz: EN302-502, EN 301 893
SAFETY	
FCC/IC (cTUVus)	UL 60950-1, UL 60950-22, CAN/CSA C22.2 60950-1, CAN/CSA C22.2 60950-22
ETSI	EN/IEC 60950-1, EN/IEC 60950-22
EMC	
FCC & ETSI	FCC: CFR47 Class B, Part15, Subpart B. ETSI: EN 301 489-1, EN 301 489-4
CAN/CSA-CEI/IEC & AS/NZS	CISPR 22-10 Class B. CISPR 22-2010 Class B
INTEGRATED SMART BEAMFORMING ANTENNA	
Frequency Range	5.x GHz: 5.150-5.875 GHz 3.x GHz: 3.300-3.800GHz
3dB Azimuth Bandwidth	90Deg (typ)
Gain	5.x GHz: 20dBi (typical) 3.x GHz :17dBi(typical)
VSWR	1.5 :1 (typical)
3 dB Beam width (Azimuth & Elevation)	5.xGHz: Azimuth:8°. Elevation:15° 3.xGHz: Azimuth 15°.Elevation:30°

About RADWIN

RADWIN is a leading provider of sub-6 GHz wireless Point-to-Point and Point-to-Multipoint solutions that deliver voice, video and data with unmatched high-capacity for long ranges. Deployed in over 150 countries, RADWIN's solutions serve the needs of service providers, enterprises and rail and metro operators. RADWIN's industry-leading FiberinMotion® train-to-ground solution powers a range of applications including high-speed Wi-Fi for passengers, real- time CCTV, PIS and infotainment services, and CBTC.

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