RADWIN 5000 JET
REDEFINING POINT-TO-MULTIPOINT WIRELESS CONNECTIVITY IN SUB-6GHZ BANDS

Point-to MultiPoint Solution with Point-to-Point Performance

RADWIN 5000 JET is a disruptive Point-to-MultiPoint beamforming solution, excellent for operation in heavily congested unlicensed bands and licensed bands where spectrum resources are scarce.
Delivering up to 250 Mbps per sector RADWIN 5000 JET is the ideal choice for last mile connectivity, and high-end applications requiring guaranteed SLA.

RADWIN

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RADWIN 5000 JET HIGHLIGHTS

Powerful Base Station for Bandwidth Demanding Applications

- Base station with smart beamforming antenna
- Up to 250 Mbps per sector, 1 Gbps per cell (4 sectors using 2 x 40 MHz)
- Guaranteed SLA per end-user
- Fixed and nomadic capabilities
- Low Jitter
- Long range – 40 Km / 25 miles
- TDD radio synchronization for greater radio capacity

Variety of MIMO Subscriber Units

- Subscriber/remote units – 10, 25, 50 Mbps, upgradeable to 100 Mbps
- Pay as you grow capacity
- Small form factor for low visual impact

Backward Compatible

- Backward compatible with RADWIN 5000 worldwide install base
- Co-exists with RADWIN's Point-to-Point solutions

Multi-band Radio

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

RADWIN DISRUPTIVE BEAMFORMING

RADWIN Beamforming Highlights

- Small form factor base station (sector radio) 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 / diversity

RADWIN Beamforming Benefits

- High interference immunity similar to Point-to-Point (due to directional narrow beam antenna)
- Industry's highest throughput
- Improved capacity at the cell edges
- Optimized frequency reuse
- Robust operation in nLOS / NLOS
- Simplified network planning

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RADWIN 5000 JET APPLICATIONS

CARRIERS & ISPs

RADWIN 5000 JET is an excellent revenue generator for carriers and ISPs, looking to deploy Telco grade FiberClass Wireless™ access and backhaul in licensed and unlicensed sub-6GHz bands for:

- Last mile connectivity
- WiMAX network replacement
- Fiber backup
- WiFi hot spot backhaul
- DSLAMs backhaul
- Small Cell Backhaul - A dedicated version of RADWIN 5000 JET is available to support complex urban NLOS backhaul scenarios

GOVERNMENT & ENTERPRISE NETWORKS

RADWIN 5000 JET, powered by unique beamforming technology, offers wireless broadband infrastructure for government, public safety and enterprise networks required to work in semi-licensed or congested unlicensed spectrum in urban or suburban areas. RADWIN 5000 JET dramatically reduces the total cost of ownership and secures stable and reliable connectivity for the following applications:

- Connectivity of high definition video surveillance
- Long range building-to-building connectivity
- Mission critical broadband applications
- Real-time SCADA data transmission
- Industrial infrastructure monitoring & control (Oil and Gas, Utilities)
- Leased line replacement

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RADWIN 5000 JET – SMART BEAMFORMING SOLUTION

RADWIN 5000 JET is a breakthrough Point-to-MultiPoint solution, incorporating a disruptive smart beamforming MIMO antenna at the base station that redefines the performance of broadband wireless access.

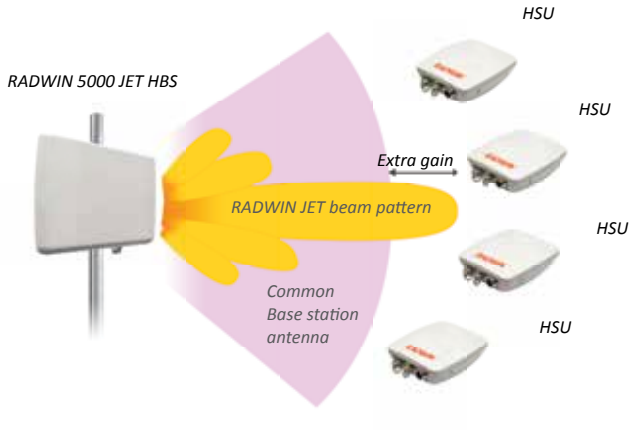
RADWIN 5000 JET beamforming antenna is formed from an array of antenna elements that are combined to generate a narrow and steerable beam. The smart beamforming antenna solution offers unique advantages.

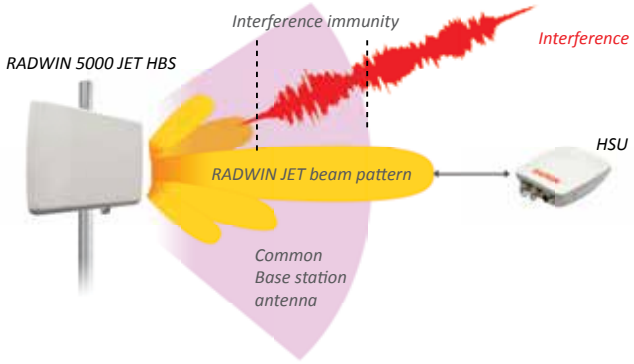
» Increased antenna and system gain

Boost capacity, range and link robustness.

» Improved interference immunity, similar to PtP

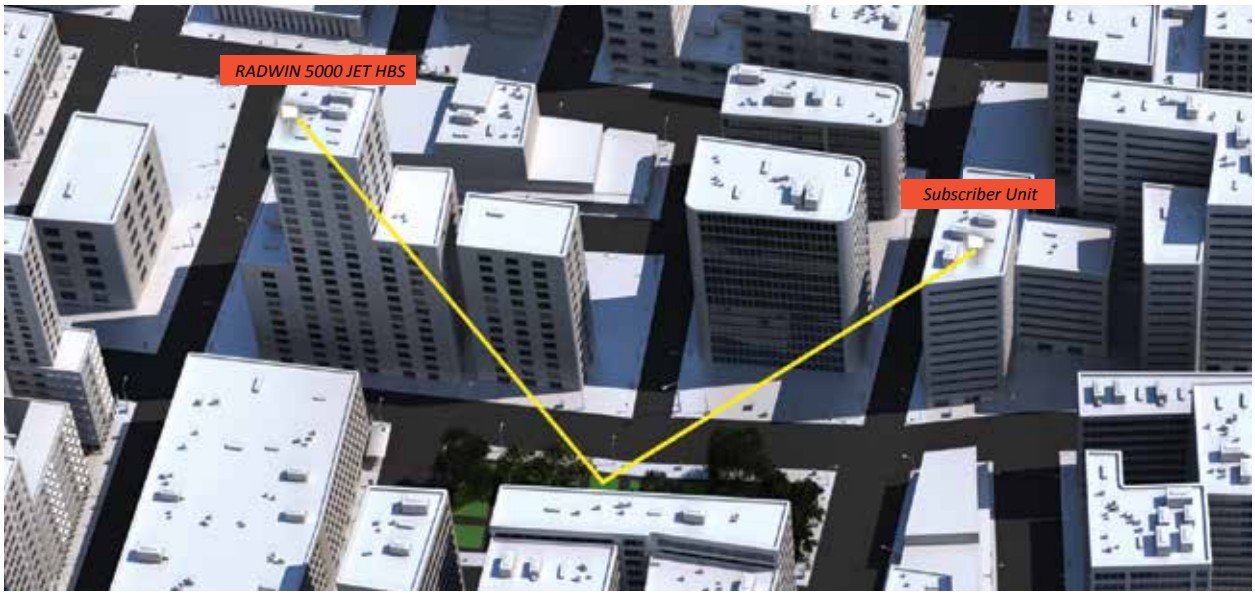
A result of the narrow beam replacing the wide beam of common sector antennas.





» Excellent operation in nLOS / NLOS conditions

Beamforming antenna can be steered to the optimal reflection point to obtain the best possible link.



» Greater frequency reuse

The narrow beam created by the beamforming antenna reduces the level of mutual interference between adjacent sectors and sites. Less spectrum is required and network planning is simplified.

PRODUCT KEY BENEFITS

Highest Actual Sector Capacity to Assure the Best User Experience

RADWIN 5000 JET base station uniquely delivers fixed and high transmit power across all modulations. When combined with a high gain and interference immune beamforming antenna, RADWIN 5000 JET delivers the highest downlink and uplink capacity per range, especially in congested unlicensed spectrum. When compared with conventional Point-to-MultiPoint solutions, RADWIN 5000 JET covers four times the distance for the same downlink capacity and twice the distance for the same uplink capacity.

Greater Network Capacity Per Given Spectrum

RADWIN 5000 JET provides the industry's highest network capacity per used spectrum: Only two frequency channels are required to deploy a multiple cell network, each cell comprises of 4 sectors. As a result, 2 channels of 20 MHz can yield tremendous cell capacity of up to 500 Mbps.

Hence, RADWIN 5000 JET is the ultimate solution when faced with lack of spectrum (e.g. in licensed bands such as 3.5GHz or unlicensed congested bands).

Secured Service Level Agreement (SLA) for Demanding Applications

RADWIN's Smart Bandwidth Management (SBM) maximizes throughput for active users. When the base station is congested, SBM assures user bandwidth per subscription agreement to uniquely guarantee SLA.

Full Span of Asymmetric Traffic

RADWIN 5000 JET can deliver more than 90% of channel traffic in either an uplink or downlink direction. This capability is ideal for full asymmetrical applications (e.g. video surveillance, IPTV) as well as symmetrical traffic.

Highest Security Level

RADWIN 5000 JET is equipped with AES 128 encryption, making it the perfect choice for government and mission critical applications.

TDD Synchronization, Enabling Dense Deployments with Maximum Performance

RADWIN 5000 JET base station enables TDD synchronization of all collocated sectors within a site. This synchronization prevents mutual interference and increases network capacity and range, while saving upon tower space and guard band spectrum. For synchronization between neighboring sites, RADWIN base station incorporates a built-in GPS antenna and receiver, ultimately reducing the amount of equipment needed.

Backward Compatible with RADWIN 5000 Install Base

RADWIN JET can be collocated with RADWIN 5000 base stations and associated with the existing HSU install base for seamless expansion of RADWIN 5000 networks. In addition RADWIN 5000 JET and RADWIN 2000 Point-to-Point solutions can create complimentary TDD synchronized solutions for last mile and backhaul deployments using the same RADWIN Network Management System (RNMS).

RADWIN 5000 JET WIRELESS COMPONENTS

RADWIN 5000 JET base station and subscriber units are ruggedized and comply with IP67 for long lasting operation in harsh conditions. Supporting 5.1-5.8 GHz and 3.3-3.8 / 3.65 GHz, the radio units comply with market leading regulations. All radio units consume low power, fed via Ethernet.

RADWIN 5000 JET High Capacity Base Stations (HBS) with Beamforming MIMO 2x2 Antenna

RADWIN HBS is a compact outdoor base station unit that includes a beamforming MIMO 2x2 antenna that covers a 90º sector.

- Supports fixed and nomadic applications
- Powered by a PoE or a dedicated data aggregation unit (IDU-H), both supplied by RADWIN.
- Includes a built-in GPS antenna and receiver for inter-site synchronization, simplifying the installation process.

RADWIN 5000 JET High Capacity Subscriber Units (HSU)

Low visual impact units identical to existing RADWIN 5000 HSUs. The HSUs deliver up to 10, 25, 50 Mbps for fixed and nomadic applications. Unit capacity can be remotely upgraded up to 100 Mbps via a software key, enabling a low initial investment while securing further capacity growth.

HSUs are available in two antenna configurations: with an integrated MIMO 2 x 2 antenna or as a connectorized unit for an external antenna.

Product Specifications

Capacity

	Base Station	Subscriber units		
	HBS 5B00	HSU 510	HSU 525	HSU 550
Maximum Net Aggregate Capacity	250 Mbps	10 Mbps	25 Mbps	50 Mbps

Frequency Bands & Antenna Configurations

3.3 - 3.8GHz, 3.65GHz	Beamforming antenna 17dBi	Int. 13dBi, 20dBi Con.	Int. 13dBi, 20dBi Con.	Int. 20dBi Con.
5.1-5.8 GHz	Beamforming antenna 20dBi	Int. 17dBi, 23dBi Con.	Int. 17dBi, 23dBi Con.	Int. 23dBi Con.

Radio	
Number of HSUs per HBS	Up to 32 HSUs simultaneously
Range	Up to 40 Km / 25 miles
Frequency Bands	Multiband radio supporting 5.1-5.8 GHz or 3.3-3.8 / 3.65 GHz
Channel Bandwidth	Configurable: 5, 10, 20 , 40 MHz
Dynamic Channel BW Selection (D-CBS)	20/40 MHz
Radio Access scheme	2x2 MIMO OFDM
Modulation	BPSK/QPSK/16QAM/64QAM
Adaptive Modulation & Coding	Supported
SLA management	CIR, MIR
End to End Latency	Typical: 3.5msec for 2 HSUs; 20msec for 32 HSUs
Duplex Technology	TDD
Uplink / Downlink BW Allocation	Configurable: Symmetric or Asymmetric
Max Tx Power	HBS : 25dBm @ 5.x GHz, 23dBm@ 3.x GHz (in all modulation schemes) HSU: 25dbm
DFS (FCC & ETSI)	Supported
Diversity	Supported at HBS & HSU, Auto MIMO /Diversity per HSU
Spectrum Viewer	Supported at HBS & HSU
TDD Synchronization	Inter & Intra site synchronization (co-existence with RADWIN 2000 PtP), Embedded GPS receiver and antenna (H1/2015)
Encryption	AES 128
Interfaces	
Ethernet Interface	HBS: Two ports for Data & management, 10/100/1000BaseT HSU: 10/100BaseT
Networking	
Sub convergence layer	Layer 2
QoS	Packet classification to 4 queues according to 802.1p and Diffserv, Strict Priority, TTL
VLAN	802.1Q, QinQ , 4094 VLANs
Management	
Management Application	HBS & HSU: RADWIN Manager & Web based management
Protocol	SNMPv1, SNMPv3, Telnet, HTTP , IPv4 & IPv6
NMS Application	RADWIN NMS (RNMS) or integration with 3rd party NMS system via standard MIBs

Power	
Power Feeding	Provided over PoE interface
Power Consumption	HBS < 25W, HSU < 12 W
Environmental	
Operating Temperatures	-35°C to °60C / 31°F to 140°F
Humidity	100% condensing, IP67 (fully protected against dust and immersion up to 1m)
Radio Regulations	
FCC	47CFR Part 15 Subpart C and Subpart E. 47CFR Part 90 Subpart Z – Restricted & Unrestricted modes
IC	RSS210- issue 8, RSS192- issue 3, RSS197- issue -1 Restricted Mode
ETSI	EN 301 893, EN 302 326-2, EN 302 502
Safety	
FCC/IC (cTUVus)	UL 60950-1, UL 60950-22, CAN/CSA C 22.2 60950-1, CAN/CSA C22.2 60950-22
ETSI	EN/IEC 60950-1, EN/IEC 60950-22
EMC	
FCC	CFR47 Class B, Part15, Subpart B
ETSI	EN 301 489-1, EN 301 489-4
CAN/CSA	CISPR 22- 10 Class B
AS/NZS	CISPR 22:-2009 Class B