HORIZON S-SERIES

ALL-OUTDOOR SUB-6 GHZ TDD MICROWAVE SYSTEM

THIS ALL-OUTDOOR BACKHAUL SOLUTION DELIVERS NON-LINE-OF-SIGHT PERFORMANCE IN SUB-6 GHZ FREQUENCIES.

DragonWave's Horizon S-Series packet microwave systems deliver up to 100 Mbps full duplex (200 Mbps aggregate) capacity and long range performance operating in licensed and licensed-exempt frequencies. Supported bands include: 2.302-2.472, 2.496-2.700, 3.300-3.800 and 4.400-6.060 GHz. When combined with an optional indoor unit, this highly robust system provides Ethernet and Native TDM (up to 16 E1s/T1s) to enable a seamless migration from TDM to all-IP networks.

The Horizon S-Series support multiple frequency bands on the same platform, providing operators with the flexibility to select the optimal transmission band. Systems incorporate state-of-the-art technologies including MIMO and OFDM. Unique air interface capabilities secure performance optimization, enabling high spectral efficiency and robust performance in dense radio environments and multipath conditions. In addition, this system supports advanced networking capabilities such as QoS, VLAN Tagging / Un-Tagging and Q in Q.

Supporting multiple architecture options, the Horizon S-Series can be deployed in point-to-point and multiple point-to-point topologies, employing TDD synchronization between co-located links and GPS based synchronization between remote links. To ensure maximum service availability in case of equipment failure or link drop, Horizon radios incorporate built-in 1+1 redundancy and ring protection functionality.

The Horizon S-Series systems comply with worldwide regulations and standards and are deployed globally by leading carriers, service providers and public and private networks requiring high-capacity connectivity.

SOLUTION HIGHLIGHTS

- Up to 100 Mbps full duplex (200 Mbps asynchronous)
- Optional integrated antenna
- Long range – up to 120 km/75 miles
- Asymmetric capacity; fixed or dynamic channel allocation
- Extremely robust in harsh weather conditions
- Operating in non-line-of-sight and dense environments
- Advanced OFDM & MIMO technologies
- QoS and VLAN capabilities
- Carrier-grade Ethernet service protection through 1+1 and ring topology
- Gigabit Ethernet support
- FIPS 197 compliant AES-128 encrypted traffic
- Low (typical) Latency <3msec
- Extremely simple to install and maintain

KEY APPLICATIONS

- Microcellular Networks
- Mobile Backhaul
- Leased Line Replacement
- Last Mile Fiber Extension
- Private and Enterprise Networks

Horizon S-Series Integrated Antenna

Horizon S-Series Back

CONFIGURATION

Architecture	ODU: Outdoor Unit with Integrated Antenna or Connectorized Unit for External Antenna
IDU to ODU Interface	Outdoor CAT-5e cable; Maximum cable length: 100m for 100BaseT and 75m for 1000BaseT

RADIO

Range	Up to 120 Km / 75 miles
Frequency Bands	2.302 - 2.472 GHz (S100) 2.496 - 2.700 GHz (S100) 3.300 - 3.800 GHz (S100) 4.400 - 6.060 GHz (S25 & S100)
Channel Bandwidth	S25: 5/10/20 MHz S100: 5/10/20/40 MHz
Max Throughput	S25: 25 Mbps Full Duplex / 50 Mbps Asymmetric S100: 100 Mbps Full Duplex / 200 Mbps Asymmetric
Maximum Tx Power	25 dBm @ 2.49-2.7; 3.3-3.8; 4.4-6.06 GHz 26 dBm @ 2.3-2.47 GHz
Adaptive Modulation & Coding	Supported
Automatic Channel Selection	Supported
Bandwidth Allocation	Symmetric or Asymmetric
Diversity	Polarization and Spatial diversity supported
Spectrum View	Built-in spectrum analyzer
Duplex Technology	TDD
Radio Modes	MIMO/Diversity/Single
Encryption	AES-128 (FIPS 197 compliant)
TDD Synchronization	Intra-site and inter-site GPS based

ETHERNET INTERFACE

Number of Ports	IDU-C and IDU-E: 2 ports 10/100BaseT and 10/100/1000BaseT in IDU-C E0 PoE Device: 1 port 10/100BaseT or 10/100/1000BaseT or 16xT1/E1
Connector	RJ-45
SFP Port	Supported in IDU-C type FE
Service Protection	Built in support: 1+1 and Ring topology

ETHERNET BRIDGING

VLAN	802.1Q, 802.1P and QinQ Tagging
QoS	4 levels supported
Maximum Frame Size	2048 bytes
Latency	< 3msec

POWER

Power Feeding	-20 to -60 VDC (dual feed); 100-240 VAC, 50/60 Hz
Power Consumption	20-35W (ODU+IDU); 5-15W (ODU+PoE device)

TDM INTERFACE

Number of Ports	Up to 16 E1s/T1s
Framing	Unframed (Transparent)
Timing	Independent timing per port, Tx and Rx
Connector	RJ-45
Standards Compliance	ITU-T G.703, G.826
Line Code	E1: HDB3 @ 2.048 Mbps; T1: B8ZS/AMI @ 1.544 Mbps
Latency	Configurable: 5-20 msec (default: 8 msec)
Impedance	E1: 120Ω, balanced; T1: 100Ω, balanced
Jitter & Wander	According to ITU-T G.823, G.824

MANAGEMENT

Protocol	SNMP and Telnet

MECHANICAL

ODU with Integrated Antenna	37.1cm(w) x 37.1cm(h) x 11cm(d); 3.5 kg / 7 lbs
ODU Connectorized (Embedded antenna)	19.5cm(w) x 27.0cm(h) x 8.0cm(d); 1.8 kg / 3.6 lbs
Optional IDU	43.6cm(w) x 4.4cm(h) x 21cm(d); 1.5 kg / 3.3 lbs

ENVIRONMENTAL

Operating Temperatures	ODU: -35°C to 60°C / -31°F to 140°F; IDU: 0°C to 50°C / 32°F to 122°F
Humidity	ODU: 100% condensing, IP67 (totally protected against dust and immersion up to 1m); IDU-C: 90% non-condensing

RADIO REGULATIONS

FCC	47CFR, Part 15 Subparts C&E; Part 90 Subpart Y 47CFR, Part 27
IC (Canada)	RSS-210, RSS-111 RSS 192, issue-3
EN (ETSI)	300 328; 301 893; 302 502, 302_326-2,
WPC (India)	GSR-38
MII (China)	5.8 GHz Band Regulation

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	47CFR Class B, Part15, Subpart B
ETSI	EN 300 386, EN 301 489-1, EN 301 489-4
CAN/CSA	CISPR 22-04 Class B
AS/NZS	CISPR 22:2004 Class B
MII (China)	5.8 GHz Band Regulation

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