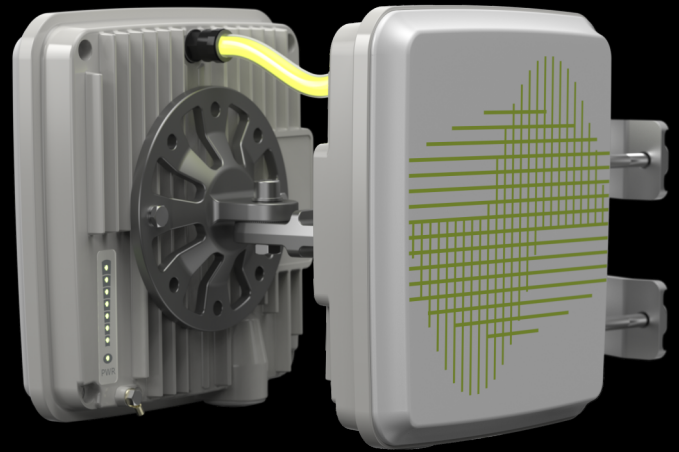# ASTRADRIVE
Trackside Station

PRODUCT DATASHEET

The ASTRADRIVE Trackside Station with innovative dual-antenna design is specifically developed for railway applications operating at speeds of up to 400 km/h.

Its two back-to-back 18 dBi directional antennas ensures uninterrupted connectivity during train passage and eliminates handover delays with seamless roaming capabilities.
The ASTRADRIVE Trackside Station is used for installation on support poles along the route of the moving carriage in train-to-ground projects.

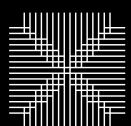|	
Net throughput	Up to 670 Mbps in 80 MHz
Transmit power	Up to 25 dBm
	Up to 10 km
Recommended distances	

Astrawireless

TECHNICAL SPECIFICATION

Net throughput	up to 670 Mbps in 80 Mhz up to 370 Mbps in 40 Mhz up to 160 Mbps in 20 Mhz
Packet performance	180 000 pps
Transmit power	up to 25 dBm
Internal cable losses	up to 3 dB
Receiver sensitivity	down to -91 dBm
Antenna gain	2x18 dBi, 18° x 18° for each
Frequency range	4900–6425 Mhz
Channel width	20, 40, 80 MHz
Center frequency adjustment step	1 MHz
Power consumption	up to 15 W
Recommended distances	10+ km

Astrawireless

TECHNICAL SPECIFICATION

Duplex scheme	TDD
Radio technology	MIMO 2x2 (OFDM 64/128)
Modulation coding schemes	from BPSK 1/2 to QAM256 5/6
Wired Interfaces	1x GigabitEthernet RJ-45
Power options	via Eth0: - 90-240 VAC ~ @ 50/60 Hz +-43..56 VDC - Passive PoE or 802.3at
GPS module	not available
Outdoor Unit (ODU)	188x188x200 mm, 2,6 kg
Packing List	Outdoor unit Trackside station: 1 Power Supply IDU-CPE-G(24W): 1 Power Cord: 1 Cable Gland for RJ-45: 1 Standard RJ-45 connector: 1 Shielded RJ-45 connector: 1 RJ-45 Plug Cap: 1 MONT-KIT-85 Mounting kit: 1 Quick Start Guide: 1

Astrawireless

RADIO FEATURES

Adaptive TDMA air protocol

- Dynamic and fixed air frame duration
- Subscriber activity aware scheduling
- Permanent channel testing

- Voice/RTP Aware Superpacketing

- Channel Time Adjustment
- Spectrum Analyzer mode
- Channel testing tools

Air frame Configurable

- From 1 to 10 ms
- Uplink / Downlink ratio Configurable from 50:50 to 92:8, in any direction

- DFS / Radar detection / Instant DFS

- Automatic Bitrate Control
- Automatic Transmit Power Control
- Automatic Distance Measurement

NETWORKING FEATURES

Switching

- Full-fledged 2nd layer switch
- VLAN 802.1Q, 802.1ad
- IGMP Snooping
- MAC/IP filtering, L2/L3 Firewall
- STP, RSTP support

Routing

- ARP protocol support
- NAT (multipool, H.323-aware)
- DHCP client/server/relay
- ODR routing protocol
- RIPv2 / OSPFv2 /static routing
- Ethernet-over-IP and IP-over-IP tunnels

Quality of Service

- IEEE 802.1p, IP TOS/DiffServ support
- 17 priority queues
- Full voice support
- Auto priority of multicast
- Traffic limiting (absolute, relative)

Own network infrastructure

- Proprietary MINT network protocol
- Pseudo-radio interface

Astrawireless

MANAGEMENT AND SECURITY

Management features

- Various Management Protocols: HTTP, HTTPS, SSH, Telnet, SNMP v1/2c/3 (MIB-II and proprietary MIBs)
- Graphical User Interface
- Antenna alignment tool
- Automatic software update
- Online monitoring with proprietary EMS NEXT

Safety & Security

- Storm/flood protection
- Password protection
- Secure CLI access via SSH protocol
- AES-128/256 (pending)

LED Indication

- Power status, wired link status, signal level

STANDARD COMPLIANCE

Radio

- ETSI EN 301 893 v.2.1.1
- ETSI EN 302 502 v.2.1.1
- FCC part 15.407

Safety

- EN 62368-1:2014+A11:2017
- UL 62368-22:2017
- EN 62311:2008

RoHS3

- EN IEC 63000:2018

EMC

- ETSI EN 301 489-1 v.2.2.3
- ETSI EN 301 489-17 v.3.2.4
- FCC Part 15 Class B

Lightning protection

- IEC 61000-4-2:
  +/-4kV (contact discharge),
  +/-8kV (air discharge)
- IEC 61000-4-4:
  +/-0.5kVIEC 61000-4-5:
  +/-1kV (line-to-ground),
  +/-0.5kV (line-to-line)

OPERATION OPTIONS

Outdoor Unit conditions

- -40..+60°C, can be extended to -55..+60°C (models with "t" index)
- 100% humidity, condensing
- Dust and water protection: IP66, IP67
- Wind load: 160 km/h operational; 200 km/h survival

Indoor Unit conditions

- 0..+40°C
- 95% humidity, non-condensing

- Cooling: fanless design corrugated aluminium