WiBAS G5 Smart

The WiBAS™ G5 Smart sector radio

All-Outdoor MU-MIMO Radio with beamforming antenna

Overview

The WiBAS™ G5 Smart base station is an all-outdoor TDD PtMP sector operating in multiple mmWave licensed band frequencies and delivering up to 5.6 Gbit/s aggregate throughput. It combines MU-MIMO (4T4R data layers), for concurrently addressing multiple terminal stations, and AAS, for making beamforming a reality, to deliver robust, interference free ultra-broadband connections. WiBAS™ G5 Smart accommodates advanced WiBAS™ modem technology along with efficient Wireless MAC & Data Networking capabilities enabling terminal stations to achieve downlink throughputs up to 2.4 Gbit/s. The WiBAS™ G5 Smart base station is ideal for operators needing to deploy dense FWA networks in urban and rural environments.

System Specifications

	24-26 GHz	26-28 GHz	29-31 GHz	37-39 GHz
Order Code	WG5-SMART-BS-24-26	WG5-SMART-BS-26-28	WG5-SMART-BS-29-31	WG5-SMART-BS-37-39
Operating Frequencies, GHz	24.25-26.50	26.50-28.50	29.10-31.30	37.00-40.00
TDD DL:UL Split Ratio	4:1		3:2, 4:1	4:1
RF Channel Arrangement	ECC Decision (18)06, FCC Part 30		FCC Part 101	FCC Part 30
Channel Bandwidth, MHz	100 / 200		75 / 150	100 / 200
User Access Method	Hybrid Beamforming Multi User MIMO (Hybrid MU-MIMO)			
L1 Sector Capacity (Aggregate)	Up to 5.6 Gbit/s (200 MHz, MIMO 4x4)			
Modulation DL/UL	Up to 1024-QAM / 256-QAM			
Subscriber Density (TS / Sector)	Up to 120			
Tx Power, max. (4-QAM, TRP/EIRP), dBm[1]	30.6 / 57.1		28.6 / 56.1	
Polarization	Vertical / Horizontal			
Concurrent Number of Beams	4 (2 Vertical & 2 Horizontal)			
Sensitivity (typ.) (4-QAM 1/2 DL), dBm	-82.0 / -79.0 (100 / 200)		-84.0 / -81.0 (75 / 100)	-82.0 / -79.0 (100 / 200)
Antenna / Gain	Embedded Beamforming / 26.5 dBi		Embedded Beamforming / 27.5 dBi	
Power Supply, nominal	-48 V DC (delivered directly)			
Max. Power Consumption, W	145			
Dimensions (H x W x D), mm	354 x 328 x 144			
Weight, kg	14.1 (excluding mounting kit)			
Protections Against Dust & Water	Class IP66, IP67 / IEC 60529			
Temperature				
Operation according to specs	-33 °C to +55 °C[2]			
Storage / Transportation	-40 °C to +70 °C			
Interfaces / Ports				
1 x GbE (RJ-45)	Traffic / inband NMS (1 Gbit/s)			
1 x GbE (SFP1)	Traffic / inband NMS (10 Gbit/s)			
1 x GbE (SFP2)	Traffic / inband NMS (2.5 Gbit/s)			
1 x GNSS Antenna (N-type)	GNSS antenna port			
PSU	Power supply (48 V)			

[1] When 4 beams are active.
[2] Operation up to 65° with sunshade. The unit is functional down to -50 °C but specifications are not guaranteed below -33 °C.

Features / Networking

- **Radio**
  - ETSI EN 302 326-2
  - 784/2019/EU
  - FCC 47 CFR Part 30, Upper Microwave Flexible Use Service
  - FCC 47 CFR Part 101, Local Multipoint Distribution Service

- **Ethernet**
  - IEEE 802.3-2008 (10 / 100 / 1000Base-T)
  - IEEE 802.3-2008 Clause 49 (10GBASE-R)
  - IEEE 802.3-2008 (Optical Gigabit Ethernet 1000Base-SX / LX)
  - SFF-8472 (SFP DOM/DDM)

- **Ethernet Standards & Functionality**
  - IEEE 802.1Q (VLAN-aware bridging)
  - Ethernet CoS (PCP)
  - VLAN point-to-point services
  - IEEE 802.1ad (Provider Bridges), Q-in-Q
  - Configurable EtherType
  - 1:1 VLAN translation and bundling on UNI trunk port for MEF EVPL and EVP-LAN services
  - 1:2 VLAN translation on UNI trunk port for FWA wholesale services
  - L2CP processing
  - MEF CE 2.0 port-based (EPL/EP-LAN) and VLAN-based (EVPL/EVP-LAN) services
  - Internal and external loopback on Gigabit Ethernet ports

- **Ethernet QoS**
  - Ingress packet classification per Interface, VLAN ID, L2 PCP, L3 DSCP, MPLS EXP or combinations
  - Classification actions supported: police, deny, remark
  - Remarking of L2 PCP
  - Ingress bandwidth profile (policing): Two-Rate Three-Color per UNI/EVC/CoS

- **Scheduling**
  - Egress classification based on VLAN, inner VLAN CoS, PCP, DSCP, MPLS EXP criteria
  - Traffic shaping per TS (DL/UL)
  - Two-stage hierarchical scheduling of service flows established between Base Station sector and Terminals
  - Traffic Aware balancing of Terminal Stations between beam pairs
  - Second level: Traffic prioritization within a service flow based on class of service
    - Eight (8) queues, packet scheduling strict-priority (SP)
    - Configurable queue size to cope with traffic burstiness (e.g. for TCP traffic)
  - First level: Scheduling between multiple service flows based on service class and shaping per service flow
    - Eight (8) priority queues (6 available for user traffic)
    - Three service classes:
      - Real-Time Variable Rate (RTVR) for guaranteed service
      - Non-Real-Time Variable Rate (NRTVR) for guaranteed service
      - Best-Effort (BE) for non-guaranteed service

- **Bridge Security**
  - MAC Security and Port Flooding
  - MAC Learning Enable/Disable
  - Storm Control and Split Horizon

- **Air Interface**
  - Quad Stream Multi User MIMO
  - Security with proprietary “closed” system architecture

- **GNSS Synchronization**
  - GPS
  - Glonass
  - Galileo
  - Beidou

- **Management**
  - Through uni|MS™ / Web interface / CLI:
    - NTP, SNMPv2c, SNMPv3, SYSLOG, TACACS+, RMON (RFC 2819)
    - Telnet / SSH, HTTP / HTTPS, FTP / SFTP
    - Historical statistics

- **EMC / EMI**
  - ETSI EN 301 489-1
  - ETSI EN 301 489-4
  - EN 55022
  - EN 55032
  - FCC 47 CFR Part 15, Subpart B, Unintentional Radiators

- **Health and Safety**
  - EN 62368-1
  - EN 60529
  - EN 50385
  - EN 62232
  - EN 60215
  - OET Bulletin 65

- **RoHS**
  - EN IEC 63000

- **Environmental**
  - ETSI EN 300019-2-4, Class 4.1 (Operation)
  - ETSI EN 300 019-2-2, Class 2.3 (Transportation)
  - ETSI EN 300 019-2-1, Class 1.2 (Storage)

- **Reliability**
  - MTBF > 100 years

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