WiBAS

Data Sheet

Overview

WiBAS™ is a carrier-grade Point-to-MultiPoint (PtMP) microwave family of products based on state-of-the-art IEEE 802.16 technology. WiBAS™ is a split indoor / outdoor system mainly composed of WiBAS™-HCS or WiBAS™-C Base station indoor unit, OmniWAY™-2G compact interworking unit (for WiBAS™-C Base station), MSAD Terminal station Multi-Service Access Device, and BRB / TRB Base station / Terminal station Radio Box.

System Specifications

Radio

Operating Frequencies, GHz	10.5 (10.15 - 10.65)	26 (24.50 - 26.50)	28 (27.50 - 29.50)
Channel Size, MHz	28 / 14 / 7 / 3.5	28 / 14	
Duplex Spacing, MHZ	350	1008	
Modulation (adaptive)	4 QAM 2/3, 4 QAM, 16 QAM, 64 QAM, 256 QAM		
Radio Access Method	FDD / TDM (DL) / TDMA (UL)		
Max. Bitrate (gross), Mbits/s	180 (28MHz / 256 QAM)		
Max. Range[(1)], km	26.8 (7 MHz)	9.7 (14 MHz)	7.8 (14 MHz)
System Gain[(2)], dB (typical)	162.0 (7 MHz)	167.0 (14 MHz)	165.5 (14 MHz)
Transmit Power, dBm (typical)	25.0	17.5	14.5

Networking

- **TDM**
  - ITU-T G.703 / G.704 / G.706 / G.732
- **TDM Synchronization**
  - ITU-T G.783 / G.811 / G.812 / G.813 / G.823 / G.825
- **ATM / IMA**
  - ITU-T G.703 / G.704 / G.804 / G.706 / G.736 / G.775 / G.823 / I.431 / O.151
  - ITU-T I.432-03/93 B-ISDN UNI (User Network Interface) – Physical Layer specification
  - ETSI (ETS 300 011 / ETS 300 166 / ETS 300 233 / CTR12 / CTR4)
  - AT&T (TR-54016 / TR-62411)
  - ATM Forum Inverse Multiplexer for ATM / IMA (Specification 1.1)
- **STM-1**
  - ITU-T G.707 / G.781 / G.783
- **ATM QoS**
  - CBR, VBR-rt, VBR-nrt, UBR
- **Ethernet**
  - IEEE 802.1ad
  - IEEE 802.1q
- **Ethernet QoS**
  - IEEE 802.1p (DL / UL)
  - IEEE 802.1q (UL)
- **Air Interface**
  - Based on IEEE 802.16 (Single Carrier)
- **Air MAC QoS**
  - Unsolicited Grant Service (UGS)
  - Real Time Polling Service (rtPS)
  - Non-Real Time Polling Service (nrtPS)
  - Best Effort Service (BES)

(1) Calculated for a propagation environment similar to Moscow, Russia, using ITU-R P.530-7 and the following values: [a] Annual availability (due to propagation): 99.995% | [b] Vertical polarization | [c] Rain intensity, R0.01 = 22 mm/h | [d] BS / TS antenna height difference: 20 m | [e] Geoclimatic factor: 5.35×10^{-6} | [f] Zero implementation & field margin

(2) Using V-polarized antennas (sectoral 90° at the Base Station & parabolic 2 ft / 60 cm at the Terminal Station).

Standards

- **Radio**
  - ETSI EN 302 326-1 v1.2.2, Annex E
  - ETSI EN 302 326-2
  - ETSI EN 302 326-3
  - ETSI TS 102 123
- **EMC / EMI**
  - WiBAS™-HCS / WiBAS™-C
    - ETSI EN 301 489-4 v1.3.1 (use in telecommunication centers)
  - MSAD
    - ETSI EN 301 489-4 v1.3.1
    - EN 61000-3-2:2006
    - EN 61000-3-3:1995 +A1:2001
  - BRB / TRB
    - ETSI EN 301 489-4 v1.3.1
- **Electrical Safety**
  - WiBAS™-HCS / WiBAS™-C / MSAD / BRB/TRB
    - EN 60950-1 (2006)
    - EN 50385 (2002)
- **Environmental**
  - Operation (WiBAS™-HCS / WiBAS™-C / MSAD)
    - ETSI EN 300 019-2-3 v2.2.2:2003, Class 3.2
  - Operation (BRB / TRB)
    - ETSI EN 300 019-2-4 v2.2.2:2003, Class 4.1E
  - Transportation
    - ETSI EN 300 019-2-2 v2.1.2:1999, Class 2.3
  - Storage
    - ETSI EN 300 019-2-1 v2.1.2:2000, Class 1.2

Equipment Specifications

	WiBAS™-HCS (Base Station High Capacity Subrack – 18 service blade slots)	**WiBAS™-C** (Base Station Compact Subrack)	**OmniWAY™-2G** (Compact interworking unit for WiBAS™-C Base Station)	**MSAD** (Terminal Station Multi-Service Access Device)	**BRB / TRB** (Base station / Terminal Station Radio Box)
Operating Voltrage, V	-40 to -60 (-48 typ.)			-40 to -60 (DC version), 110 to 265 at 50/60 Hz (AC version)	-40 to -60 (-48 typ.)
Max. Power Consumption, W	499	85	80	20	15
Dimensions (H x W x D), mm	621.5 (14 U) x 482.6 (19″) x 284.7	44.5 (1U) x 482.6 (19″) x 284.7	44.45 (1U) x 482.6 (19″) x 245	44.45 (1U) x 442 x 240	285 x 262 x 75 (10.5 GHz), 200 x 210 x 40 (26 / 28 GHz)
Weight, kg	44 (approx., fully equipped)	8.4 (approx., fully equipped)	6.5	4	3.0 (10.5 GHz), 2.5 (26 / 28 GHz)
Operating Temperature	-5 °C to +45 °C				-50 °C to +60 °C
Relative Humidity	0 % to 95 %, non-condensing				
Interfaces *(Front-only access)*	• 2 x GbE (electrical) • 2 x STM-1/ VC-4 (SFP, 2+0/1+1)[3] • 2 x STM-1/ VC-12 (SFP, 2+0/2+2)[3] • 16 x E1 TDM[3] • 32 x E1 ATM / IMA[3] • 1 x FE • Sync IN / OUT • External I/O	• 2 x GbE (electrical & optical) • 32 x E1 TDM • 2 x NMS 10/100 • Sync IN / OUT • External I/O	• 4 x GbE, optical or electrical • 4 x STM-1 / VC-12 (optical, 2+0 / 2+2) • 2 x STM-1 / VC-4 (optical, 2+0 / 1+1) • 1 x FE (outband management) • Serial RS-232 • Sync IN / OUT • External I/O	• 1 or 2 x FE[4] • 4 or 12 x E1 TDM or E1 ATM (IMA)[4] • Control interface (Craft)	• F-type (f), or optionally N-type (f), to connect to the indoor unit • Waveguide flange WR-42 or WR 28 (for 26 / 28 GHz antenna), or N-type (f) (for antenna 10.5 GHz) • Jack 3.5 mm, to connect the antenna alignment headset

[3] Per service blade.
[4] Depending on model.

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