



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:

⁽²⁾ 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: 5.35x10⁻⁶ | ^(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**
 - WiBASTM-HCS / WiBASTM-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**
 - WiBASTM-HCS / WiBASTM-C / MSAD / BRB/TRB
 - EN 60950-1 (2006)
 - EN 50385 (2002)
- **Environmental**
 - Operation (WiBASTM-HCS / WiBASTM-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

	WiBASTM-HCS (Base Station High Capacity Subrack – 18 service blade slots)	WiBASTM-C (Base Station Compact Subrack)	OmniWAYTM-2G (Compact interworking unit for WiBASTM-C Base Station)	MSAD (Terminal Station Multi-Service Access Device)	BRB / TRB (Base station / Terminal Station Radio Box)
Operating Voltage, 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)	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 2 x GbE (electrical & optical) • 32 x E1 TDM • 2 x NMS 10/100 • Sync IN / OUT • External I/O 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 1 or 2 x FE⁽⁴⁾ • 4 or 12 x E1 TDM or E1 ATM (IMA)⁽⁴⁾ • Control interface (Craft) 	<ul style="list-style-type: none"> • 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.