

ALFOplus series

Product Leaflet



sae microelettronica

High Capacity IP Ethernet Full Outdoor

ALFOplus is a Full-Outdoor, fully IP Next Generation Microwave Radio.

Its zero footprint solution allows for fast rollout of 3G and LTE IP backhaul networks. Ideal for a fast and flexible evolution towards full IP networks it offers best in class performance and the lowest power consumption for a green but performing network.



Torino, Italy

MICROWAVE RADIO

ALFOplus combines compactness, best in class performance and the lowest power consumption in a single efficient and cost effective full outdoor device. It offers up to 500 Mbps transport capacity over higher modulation schemes of 1024QAM. ALFOplus is optimized for TCP/IP transport compliant to LTE traffic needs including packet synchronization techniques.



MAIN FEATURES

- 4 QAM to 1024 QAM modulations
- ACM adaptive code and modulation
- MultiLayer Header Compression
- 1 Gbps throughput
- Best in Class for SystemGain
- FCC/ETSI Channels supported
- Advanced Pure IP engine
- CISCO Microwave Adaptive Bandwidth feature interworking
- Synchronous Ethernet support
- IEEE 1588 v2 support
- Extended buffer for TCP/IP efficiency in LTE networks
- 1+0 Non-Protected Configuration
- Optical or Electrical port options
- Lowest power consumption
- Integrate antennae up to 1.8 m
- Unified Network Management System - NMS5

LAYER 2 MAIN FUNCTIONALITIES

- MEF-9 and MEF-14 Compliancy
- 8 queues with flexible scheduler (Strict WFQ and mixed)
- Flexible QoS definition based on VLAN, IPv4, IPv6, MPLS exp bits
- Per queue WRED congestion avoidance
- Flow Based Ingress Policing (CIR & EIR definition)
- Flow Control IEEE 802.3x
- RMON Statistic management
- VLAN/VLAN STACKING (IEEE 802.1q with QinQ)
- Link Aggregation IEEE 802.3ad
- ETH OAM IEEE 802.1ag/ITU-T Y 1731
- Jumbo Frames up to 10 Kbytes

TYPICAL APPLICATIONS

- Any-G Mobile Backhaul for Access and aggregation
- ISP High Capacity LAN to LAN connections
- Last Mile fiber extension for business customers
- Emergency wireless links
- Complementary solution to fiber deploy
- Zero footprint applications



MEMBER OF:



COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV GL
= ISO 9001:2015 =

ALFOplus

Pure IP, High Capacity Full Outdoor

Frequency	11, 18, 23 & 24 GHz			
Supported configurations	(1+0)			
Modulation schemes	4/16/32/64/128/512/1024 QAM with Hitless Adaptive Code and Modulation			
Supported Ethernet Throughput	500 Mbps			
Traffic interfaces	2 x GE electrical / optical			
Output power at point C'	11 GHz	18 GHz	23 GHz	24 GHz
4 QAM	+27	+23	+23	-4
16 QAM	+24	+21	+21	-4
32 QAM	+23	+19	+19	-4
64 QAM	+23	+19	+19	-4
128 QAM	+23	+19	+19	-4
256 QAM	+23	+19	+19	-4
512 QAM	+23	+19	+19	-4
1024 QAM	+22	+18	+18	-4
Receiver sensitivity ar BER 10 ⁻⁶ at point C (1+0 conf., 30 MHz RF filter losses included)	11 GHz	18 GHz	23 GHz	23 GHz
4 QAM	-90.5	-90	-90	-85.5
16 QAM	-83.5	-82	-82	-78.5
32 QAM	-78	-78.5	-78.5	-74
64 QAM	-76	-75.5	-75.5	-71
128 QAM	-73	-72.5	-72.5	-68
256 QAM	-69.5	-69	-69	-64.5
512 QAM	-67	-66.5	-66.5	-62
1024 QAM	-63	-62.5	-62.5	-58
Frequency stability	± 5 ppm			
ATPC	20 dB range implemented in 1 dB steps			
RTPC	Up to 20 dB in 1 dB step, software programmable			
Service channels	VoIP			
ODU connector	RJ45 or SFP Optical Plug-in			
Management Interfaces	In-band management			
Mechanical dimensions ODU (WxHxD)	10 x 10 x 6 (in)			
Weight	9.4 (lbs)			
Power supply	25 ÷ 60 VDC floating			
Power consumption (per terminal)	≤ 35W in 1+0 configuration			
ODU weather proofing class	IP65			
ODU operational Temperature (standard range)	-35° C to +55 ° C			
Ethernet characteristics	MAC address switching, ageing and learning VLAN / VLAN stacking (IEEE 802.1ad-QinQ) Ethernet QoS (IEEE 802.1p) Flow Control (IEEE 802.3x) RMON Statistics (RFC 2819) LLF (Link Loss Forwarding) LAG (Link Aggregation IEE 802.3ad) ETH OAM (IEEE 802.1ag / ITU-T Y.1731) RSTP (Rapid Spanning Tree Protocol)			
Compliant with	FCC Part 101		FCC Part 15	



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