



# AERO<sup>®</sup> Duo

Spectrum-Friendly Gigabit Backhaul



Take a giant step ahead  
in spectrum efficiency with  
3Roam's 1024QAM technology



# AERO Duo

## Redefine your spectrum requirements

### 1024QAM radio with Adaptive<sup>3</sup> technology

Industry's widest coverage of

- Frequency bands: 6, 7, 11, 13, 15, 18, 23, 26, 28, 32, 38, 42 GHz
- Channel bandwidth: 3.5, 7, 14, 28, 56 MHz

AERO Duo integrates 3Roam's **Adaptive<sup>3</sup>** technology, combining adaptive power, adaptive coding and modulation for highest link uptime and smaller antennas.

High-power radios provide longer links, higher availability at maximum 1024QAM capacity.

3Roam's AERO Duo provide high transmit power operation at 1024QAM and 512QAM modes through dynamic distortion compensation.

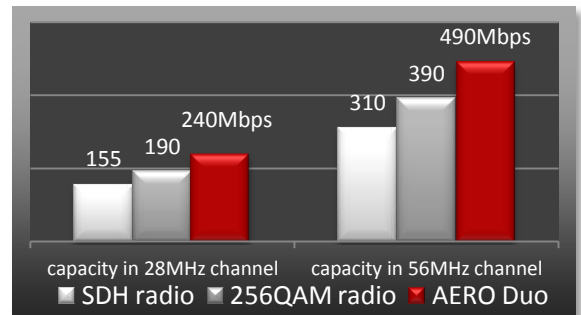
### More capacity, less spectrum

3Roam **1024QAM** radio technology provides unprecedented spectrum efficiency.

With a capacity increase of **25% compared to today's 256QAM** radios, AERO Duo provides even bigger gains compared to previous technology nodes, with **more than 50% gain compared to existing SDH links**.

AERO Duo also provides an excellent upgrade **alternative for low capacity links**, reducing your overall spectrum spending. Any link below 25Mbps can now be fitted into a **cost-optimised 3.5MHz band**.

From simple connectivity needs to the most demanding network requirements, AERO Duo provides **advanced radio and networking configurations**. The feature rich AERO Duo 4G variant combines with AERO Duo 1G to create fully redundant protected transmission stacks and aggregated dual-polarised links, **breaking the Gigabit frontier**.



AERO Duo provides 50% capacity improvement compared to SDH radios

### Matching your connectivity requirements



## AERO Duo 1G

Simply connected



## AERO Duo 4G

Powerful IP network node

#### Use Cases

State-of-the-art 1024QAM radio with transparent Ethernet bridge connectivity.  
Choice of in-band or true out-of-band management

The powerful network node with feature rich Ethernet capabilities for 1+1 protection, 2+0 aggregation, up to 4+4 set-up for your network's most critical Ethernet trunks

#### Connectivity

1 port GbEth for payload,  
1 port management

4 ports Gigabit Ethernet  
1 port fiber SFP

#### Mechanical & Power

Compact 1/2U rack form factor. High reliability fanless design.  
Flexible mounting options for advanced protection or 1 Gigabit aggregation in 1U rack space.  
100% system and power redundancy with real-time fiber-based traffic duplication.  
Master / Slave stacking possibilities for any configuration from 1+0 to 4+4 high capacity protected links.



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### ODU GIGA-Maximum Recommended Transmit Power (dBm)

MODULATIONS	6L /6U/7/8GHz	11 GHz	13 /15 GHz	18 /23/26/ 28 GHz	32 / 38 GHz
QPSK/16QAM	30	28	26	25	23
16/32 QAM	29	27	24	23	21
64/128 QAM	26.5	23.5	20.5	19.5	18.5
256 QAM	25	22	19	18	17.5
512/1024QAM	23	20	17	16	15

### ODU MEGA-Maximum Recommended Transmit Power (dBm)

MODULATIONS	7/8 GHz	11 /13 /15 GHz	18 GHz	23 GHz	26 /28 GHz	32 GHz	38 GHz
QPSK/16QAM	27	26	25.5	24	23.5	22.5	22
32/64 QAM	25	24	21.5	22.0	21.5	20.0	19.5
32/64 QAM	22	20	19.5	19	18.0	16.5	17.5

### Throughput (Mbps) / 7 GHz – 38 GHz

MODULATIONS	CHANNEL SEPARATIONS (MHz)	MAX ETHERNET CAPACITY FOR 1518B FRAMES (Mbps)
QPSK	3.5	6
	7	11
	13.75/14	22
	27.5/28	45
	56	92
16 QAM	3.5	11
	7	22
	13.75/14	44
	27.5/28	92
	56	185
32 QAM	3.5	13
	7	27
	13.75/14	55
	27.5/28	116
	56	231
64 QAM	3.5	16
	7	33
	13.75/14	66
	27.5/28	139
	56	278
128 QAM	3.5	19
	7	39
	13.75/14	78
	27.5/28	162
	56	325
256 QAM	3.5	22
	7	44
	13.75/14	89
	27.5/28	185
	56	371
512 QAM	3.5	25
	7	50
	13.75/14	100
	27.5/28	209
	56	419
1024 QAM	7	55
	13.75/14	111
	27.5/28	232
	56	464



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## Redefine your spectrum requirements

### Receiver Sensitivity (dBm, BER Data for BER=10<sup>-6</sup>) 3,5 MHz

MODULATIONS	6U/6L GHz	7 GHz	8 GHz	13 GHz	15 GHz	18 GHz	23 GHz	26 GHz	28 GHz	32 GHz	38 GHz
QPSK	-90.5	-90.5	-90.5	-90	-90	-89.5	-89.5	-89.5	-89.5	-89	-89
8QAM	-86	-86	-86	-85.5	-85.5	-85.0	-85.0	-85.0	-85.0	-84.5	-84.5
16 QAM	-84.5	-84.5	-84.5	-84	-84.0	-83.5	-83.5	-83.5	-83.5	-83.0	-83.0
32 QAM	-82.5	-82.5	-82.5	-82	-82.0	-81.5	-81.5	-81.5	-81.5	-81.0	-81.0
64 QAM	-80.0	-80.0	-80.0	-79.5	-79.5	-79.0	-79.0	-79.0	-79.0	-78.5	-78.5
128 QAM	-77.0	-77.0	-77.0	-76.5	-76.5	-68.0	-76.0	-76.0	-76.0	-75.5	-75.5
256 QAM	-75.5	-75.5	-75.5	-75	-75.0	-74.5	-74.5	-74.5	-74.5	-74.0	-74.0
512 QAM	-71.5	-71.5	-71.5	-71	-71.0	-70.5	-70.5	-70.5	-70.5	-70.0	-70.0
1024 QAM	-66.5	-66.5	-66.5	-66	-66.0	-65.5	-65.5	-65.5	-65.5	-65.0	-65.0

### Receiver Sensitivity (dBm, BER Data for BER=10<sup>-6</sup>) 7 MHz

MODULATIONS	6U/6L GHz	7 GHz	8 GHz	13 GHz	15 GHz	18 GHz	23 GHz	26 GHz	28 GHz	32 GHz	38 GHz
QPSK	-87.5	-87.5	-87.5	-87	-87.0	-86.5	-86.5	-86.5	-86.5	-86.0	-86.0
8 QAM	-84.5	-84.5	-84.5	-84	-84.0	-83.5	-83.5	-83.5	-83.5	-83.0	-83.0
16 QAM	-83.0	-83.0	-83.0	-82.5	-82.5	-82.0	-82.0	-82.0	-82.0	-81.5	-81.5
32 QAM	-82.0	-82.0	-82.0	-81.5	-81.5	-81.0	-81.0	-81.0	-81.0	-80.5	-80.5
64 QAM	-77.5	-77.5	-77.5	-77	-77.0	-76.5	-76.5	-6.5	-76.5	-76.0	-76.0
128 QAM	-74.5	-74.5	-74.5	-74	-74.0	-73.5	-73.5	-73.5	-73.5	-73.0	-73.0
256 QAM	-72.0	-72.0	-72.0	-71.5	-71.5	-71.0	-71.0	-71.0	-71.0	-70.5	-70.5
512 QAM	-68.5	-68.5	-68.5	-68	-68.0	-67.5	-67.5	-67.5	-67.5	-67.0	-67.0
1024 QAM	-64.0	-64.0	-64.0	-63.5	-63.5	-63.0	-63.0	-63.0	-63.0	-62.5	-62.5

### Receiver Sensitivity (dBm, BER Data for BER=10<sup>-6</sup>) 13,75/14 MHz

MODULATIONS	6U/6L GHz	7 GHz	8 GHz	13 GHz	15 GHz	18 GHz	23 GHz	26 GHz	28 GHz	32 GHz	38 GHz
QPSK	-85.5	-85.5	-85.5	-85	-85.0	-84.5	-84.5	-84.5	-84.5	-84.0	-84.0
8 QAM	-82.5	-82.5	-82.5	-82	-82.0	-81.5	-81.5	-81.5	-81.5	-81.0	-81.0
16 QAM	-79.5	-79.5	-79.5	-79	-79.0	-78.5	-78.5	-78.5	-78.5	-78.0	-78.0
32 QAM	-77.0	-77.0	-77.0	-76.5	-76.5	-76.0	-76.0	-76.0	-76.0	-75.5	-75.5
64 QAM	-74.5	-74.5	-74.5	-74	-74.0	-73.5	-73.5	-73.5	-73.5	-73.0	-73.0
128 QAM	-73.0	-73.0	-73.0	-72.5	-72.5	-72.0	-72.0	-72.0	-72.0	-71.5	-71.5
256 QAM	-68.5	-68.5	-68.5	-68	-68.0	-67.5	-67.5	-67.5	-67.5	-67.0	-67.0
QPSK	-84.0	-84.0	-84.0	-83.5	-83.5	-83.0	-83.0	-83.0	-83.0	-82.5	-82.5
1024 QAM	-63	-63	-63	-62.5	-62.5	-62.0	-62.0	-62.0	-62.0	-61.5	-61.5



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### Receiver Sensitivity (dBm, BER Data for BER=10<sup>-6</sup>) 27,5/28 MHz

MODULATIONS	6U/6L GHz	7 GHz	8 GHz	13 GHz	15 GHz	18 GHz	23 GHz	26 GHz	28 GHz	32 GHz	38 GHz
QPSK	-84.0	-84.0	-84.0	-83.5	-83.5	-83.0	-83.0	-83.0	-83.0	-82.5	-82.5
8 QAM	-80.0	-80.0	-80.0	-79.5	-79.5	-79.0	-79.0	-79.0	-79.0	-78.5	-78.5
16 QAM	-77.5	-77.5	-77.5	-77	-77.0	-76.5	-76.5	-76.5	-76.5	-76.0	-76.0
32 QAM	-76.0	-76.0	-76.0	-75.5	-75.5	-75.0	-75.0	-75.0	-75.0	-74.5	-74.5
64 QAM	-73.0	-73.0	-73.0	-72.5	-72.5	-72.0	-72.0	-72.0	-72.0	-71.5	-71.5
128 QAM	-70.5	-70.5	-70.5	-70	-70.0	-69.5	-69.5	-69.5	-69.5	-69.0	-69.0
256 QAM	-68.0	-68.0	-68.0	-67.5	-67.5	-67.0	-67.0	-67.0	-67.0	-66.5	-66.5
512 QAM	-63.0	-63.0	-63.0	-62.5	-62.5	-62.0	-62.0	-62.0	-62.0	-61.5	-61.5
1024 QAM	-60.5	-60.5	-60.5	-60	-60.0	-59.5	-59.5	-59.5	-59.5	-59.0	-59.0

### Receiver Sensitivity (dBm, BER Data for BER=10<sup>-6</sup>) 40 MHz

MODULATIONS	11 GHz
QPSK	-83.5
8 QAM	-80.5
16 QAM	-77.5
32 QAM	-72.0
64 QAM	-70.0
128 QAM	-67.5
256 QAM	-64.0
512 QAM	-61.0
1024 QAM	-58.0

### Receiver Sensitivity (dBm, BER Data for BER=10<sup>-6</sup>) 55/56 MHz

MODULATIONS	6U/6L GHz	7 GHz	8 GHz	13 GHz	15 GHz	18 GHz	23 GHz	26 GHz	28 GHz	32 GHz	38 GHz
QPSK	-82.0	-82.0	-82.0	-81,5	-81.5	-81.0	-81.0	-81.0	-81.0	-80.5	-80.5
8 QAM	-79.5	-79.5	-79.5	-79.0	-79.0	-78.5	-78.5	-78.5	-78.5	-78.0	-78.0
16 QAM	-76.5	-76.5	-76.5	-76.0	-76.0	-75.5	-75.5	-75.5	-75.5	-75.0	-75.0
32 QAM	-73.0	-73.0	-73.0	-72.5	-72.5	-72.0	-72.0	-72.0	-72.0	-71.5	-71.5
64 QAM	-69.5	-69.5	-69.5	-69.0	-69.0	-68.5	-68.5	-68.5	-68.5	-68.0	-68.0
128 QAM	-64.5	-64.5	-64.5	-64.0	-64.0	-63.5	-63.5	-63.5	-63.5	-63.0	-63.0
256 QAM	-63.0	-63.0	-63.0	-61.0	-61.0	-60.5	-60.5	-60.5	-60.5	-60.0	-60.0
512 QAM	-60.5	-60.5	-60.5	-58.5	-58.5	-58.0	-58.0	-58.0	-58.0	-57.5	-57.5
1024 QAM	-56.5	-56.5	-56.5	-54.5	-54.5	-54.0	-54.0	-54.0	-54.0	-53.5	-53.5