

Multi-MIMO HT-OFDM Outdoor Radio

Up to 6x6 MIMO for Multi-hops repeat

Multi-Hops Repeater in Aeronaut-MIMO PTP/PTMP Series offers customers a great solution for PTP / PTMP / Hot zone applications by integrated multi-radios interfaces (up to 3* Radio modules) and Fast Data Switching technology. This series shows incredible efficiency on multi-hops repeating – truly throughput ≥ 100 Mbps and only ≤ 15 ms total latency after 10 extended hops. Much different from the traditional Wi-fi that dropped 50% throughput per each extended hop and can't get reply from remote device after 5~6 hops for too long latency.

There are 14 channel BW options can be selected easily by software (2.5 / 3 / 3.5 / 4 / 5 / 6 / 7 / 8 / 10 / 15 / 20 / 30 / 40 / 52 MHz). This feature provides the flexibility of deployment channel plan in crowded city area or high capacity backhaul – throughput up to 268Mbps.

With MIMO HT-OFDM (High Throughput OFDM) technology, this radio is a high capacity PTP / PTMP backhaul for 5GHz ISM band wireless deployment. It utilizes coordinate and built-in NMS with internet map database to show the environment and status of the link. Customers can easily figure out the linking situation of the deployed radios.



Product Highlights

- ❖ Integrated Multi-radios interfaces on MIMO platform
Multiple radios interfaces were integrated by “Fast Data Switching” technology from Aeronaut inside the Aeronaut-MIMO series platform. There are 4 type of mode for options: Space Diversify, Aggregated, FDD and 1+1 RF Hot-standby can be configured independently to run different wireless connectivity missions.

- ❖ High efficiency transmission in Space Diversify
The backbone throughput will remain in a high level even in NLOS or multipath environments.

- ❖ Effective spectrum utility/variable capacities with 14 channel Bandwidths
This radio has 14 channels bandwidth (2.5 / 3 / 3.5 / 4 / 5 / 6 / 7 / 8 / 10 / 15 / 20 / 30 / 40 / 52 MHz) for optional, which is adjustable via software. This function provides flexibilities of channel plan in crowded urban environment and variable capacities for different applications.

- ❖ MIMO HT-OFDM technology provide amazing spectral efficiency
Up to 5.2 bits/s/Hz amazing spectral efficiency for all channel bandwidth provided by the MIMO HT-OFDM technology. Work with the variable channel bandwidth and small channel step (2.5MHz~52MHz for selection), these combination features provides great benefits to avoid the existing occupied interference spectrum for both crowded urban area and rural area.

Features

- PTP/ PTMP Ethernet backhaul
- 4.920~6.075 GHz Operating Frequency
- MIMO HT-OFDM Modulation
- Integrated Multi-Radio Interfaces
- Fast Data Switching Technology
- 14 Channel BW (2.5 / 3 / 3.5 / 4 / 5 / 6 / 7 / 8 / 10 / 15 / 20 / 30 / 40 / 52 MHz)
- Up to 268 Mbps Real TCP Throughput
- GPS Coordinates and Internet map database
- 5.2 bits/s/Hz amazing spectral efficiency
- Multi-hops repeating & Built-in NMS
- Real Aggregate TCP Throughput ≥ 320 Mbps @ 4x4 & 6x6 Base Station
- High Efficiency in Multi-hops Repeating
- Low Throughput dropped (≥ 100 Mbps @ 10 hops)
- Short Latency increased (≤ 15 ms @ 10 hops)
- IP-68 Water & Dust Resistant
- IEC61000-4-5 Surge Protection
- Outstanding MTBF

Channel BW (MHz)	2.5	3	3.5	4	5	6	7	8	10	15	20	30	40	52
Real TCP throughput (Mbps)	12	14	17	20	25	30	35	40	51	77	104	158	215	268
Application area	Valuable spectrum				Crowded urban						Rural			

Table: TCP throughput at different channel BW

Technical Specifications								
RADIO								
Frequency range		4.920 ~ 6.075 GHz †						
Channel Band Width		2.5 / 3 / 3.5 / 4 / 5 / 6 / 7 / 8 / 10 / 15 / 20 / 30 / 40 / 52 MHz						
Frequency Stability		± 2 ppm						
Modulation		MIMO HT-OFDM						
MCS Index	MIMO-OFDM / HT20				MIMO-OFDM / HT40			
	Data Rate (Mbps)		Tx Output Power (dBm)	Rx Sensitivity (BER 1 ^E 10 ⁻⁶)	Data Rate (Mbps)		Tx Output Power (dBm)	Rx Sensitivity (BER 1 ^E 10 ⁻⁶)
	GI=800ns	GI=400ns			GI=800ns	GI=400ns		
MCS8	6.5/13	N/A	27(±1.5)	-94/-92 dBm	13.5/27	15/30	27(±1.5)	-92/-90 dBm
MCS9	13/26	N/A	27(±1.5)	-92/-90 dBm	27/54	30/60	27(±1.5)	-89/-87 dBm
MCS10	19.5/39	N/A	26(±1.5)	-90/-87 dBm	40.5/81	45/90	26(±1.5)	-87/-83 dBm
MCS11	26/52	N/A	25(±1.5)	-87/-84 dBm	54/108	60/120	25(±1.5)	-84/-81 dBm
MCS12	39/78	N/A	24(±1.5)	-84/-81 dBm	81/162	90/180	24(±1.5)	-81/-79 dBm
MCS13	52/104	N/A	23(±1.5)	-80/-77 dBm	108/216	120/240	23(±1.5)	-78/-75 dBm
MCS14	58.5/117	N/A	23(±1.5)	-78/-75 dBm	121/242	135/270	23(±1.5)	-76/-73 dBm
MCS15	65/130	N/A	23(±1.5)	-76/-73 dBm	135/270	150/300	23(±1.5)	-74/-72 dBm
INTERFACES								
Wireless Interface 2 x N-type Female Connectors / 4 x N-type Female Connectors / 6 x N-type Female Connectors								
10/100/1000 Base-T RJ-45 port with M25 Cable Gland								
MANAGEABILITY								
Management and Setup		Web-based (Chrome / IE 9.0 or later)						
SNMP agents		MIB II						
Protocol		TCP/IP, IPX/SPX, NetBEUI						
Network Architecture		PTP (1+0 / 2+0) / Multi-hops / PTMP						
Antenna Alignment		WEB GUI Local / Remote Information						
Built-in NMS		Live linking status of the network by GPS coordinates and internet map database						
SECURITY								
Data Encryption		WPA-PSK / WPA2-PSK						
Advanced Security		MAC access control / Disable SSID / Proprietary protocol						
ENVIRONMENT								
Operating Temperature		-30~60 °C						
Storage Temperature		-30~70 °C						
Humidity		95% non-condensing						
POWER SUPPLY & CONSUMPTION								
Power Supply: AC 100-264V, 50-60Hz convert to DC 48V Adapter (Max. 45Watts) with 48VDC POE.								
Power Consumption : 2051C-27 : 10Watts (typical) / 12 Watts (Max.) @ DC 48V, 2052C-27 : 16Watts (typical) / 19 Watts (Max.) @ DC 48V, 2053C-27 : 22Watts (typical) / 26 Watts (Max.) @ DC 48V								
PHYSICAL								
Dimension		259 (L) * 250 (W) *75 (H), mm						
Weight		1.8Kg						
WARRANTY								
1 YEAR								
ORDERING INFORMATION								
X2-2051C		4.920~6.075 GHz 0.5 W Outdoor 2x2 MIMO HT-OFDM PTP/PTMP Ethernet Backhaul, 14 software selectable channel BW.						
X2-2052C		4.920~6.075 GHz 0.5 W Outdoor 4x4 MIMO HT-OFDM PTP/PTMP Ethernet Backhaul, 14 software selectable channel BW.						
X2-2053C		4.920~6.075 GHz 0.5 W Outdoor 6x6 MIMO HT-OFDM PTP/PTMP Ethernet Backhaul, 14 software selectable channel BW.						