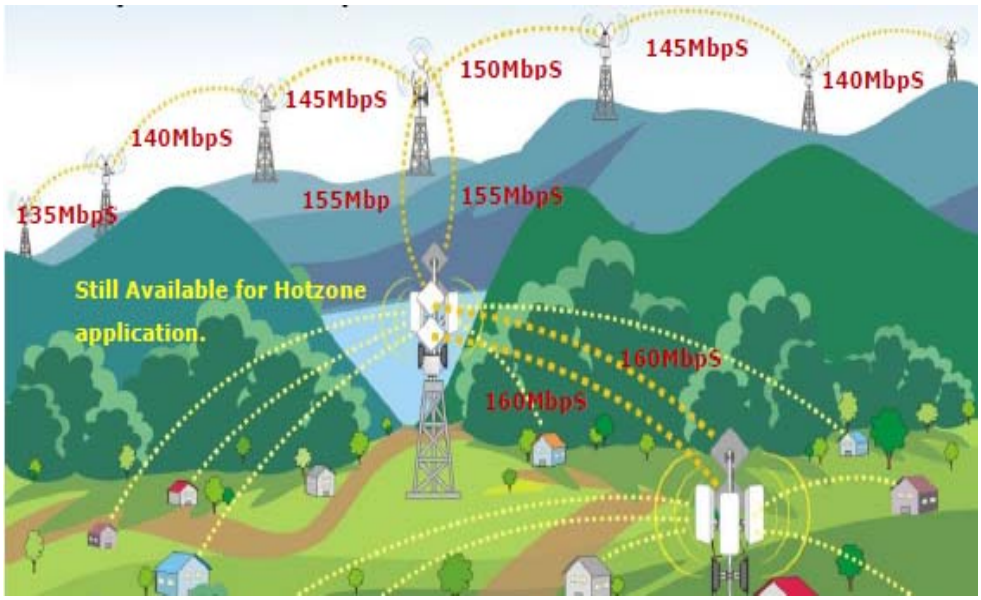
RADITEK

IP RADIO
RADLINK-2000

IP RADIO: 300Mbps (to 6x6) MIMO, OFDM Outdoor. Non Line of Site (NLOS), Wi-Fi 802.11a/b/g/n, Multi-Hop Repeater, Low Latency, Backhaul for 4G and LTE networks Up to 3 TR / unit, 2.4 or 5.8GHz, ISM Bands

RoHS COMPLIANT



The perfect internet village solution!

Features:

- **802.11 a/b/g/n MIMO OFDM Radio**
- **Integrated Multi-Radios**
- **Fast Data Switching Technology**
- **Real Aggregate TCP Throughput ≧ 320Mbps for 4x4 & 6x6 MIMO Base Station**
- **High Efficiency in Multi-hops Repeating**
  - **Low Throughput data drop, eg 100 Mbps @ 10 hops**
  - **Multi-hop latency increased, eg≦15 ms with 10 hops**
- **Operate in 2.4GHz / 5GHz ISM Band**
- **IP-68 Water & Dust Resistant**
- **IEC61000-4-5 Surge Protection**
- Outstanding MTBF

Integrated Multi-radio interfaces

- Multiple radio interfaces are integrated by "Fast Data Switching" technology from RADITEK
- Watch dog
- Integrated Multi Radio management
- Reduced Co band Interference
- Multicast/ Broadcast Storm Limitation
- Fast data switching
- Intelligent Wireless Traffic Control

There are 3 model options:
RADLINK-2001 (1 x radio);
RADLINK-2002 (2 x radios);
RADLINK-2003 (3 x radios) and each radio interface can be configured independently to run different wireless connectivity options..

High efficiency transmission: Multi-hop repeater
The throughput will remain at over 100Mbps, even after 10 hops repeating with a total latency of ≦15 ms!

Flexible wireless backbone deployment options :

- Fast data switching
- Integrated multi-radio interfaces
- High output power MIMO-OFDM
- Secure and efficient client connectivity
- QoS (Quality of Service) configurations provide flexible management
- Easily integrated with the central server supports data encryption: WEP/WPA/WPA2,

Order Examples: RADLINK-2002a-2.4/5/8-a9
Description: *(Transceiver, Dual Band (2.4/5.8GHz) 2x2 MIMO, OFDM, Outdoor Radio-Multi Hop Repeater*
Additional Options: **2001(Single Band 2.4 or 5.8Ghz)** **b,c,d (software option)**
2003(Triple Band 2.4/5.8/2.4Ghz)

WORLD HQ: 1702L Meridian Ave. Suite 127, San Jose, Ca 95125, U.S.A.
Tel: (408) 266-7404 FAX: (408) 266-4483
WEB: www.raditek.com E-mail: sales@raditek.com

IP RADIO: 300Mbps (to 6x6) MIMO, OFDM, Outdoor. Non Line of Site (NLOS), Wi-Fi 802.11a/b/g/n, Multi-Hop Repeater, Low Latency, Backhaul for 4G and LTE networks Up to 3 TR / unit, 2.4 or 5.8GHz

Tranceivers	Radlink	MIMO	Description	Real TCP Throughput **Software settable bandwidths**	
	Model #			20M BW	40M BW
1	2001a	2 x 2	Outdoor Radio-Multi Hop Repeater	80-100MB	160-200MB
	2001b	2 x 2	Outdoor Radio-Mesh	80-100MB	160-200MB
	2001c	2 x 2	Vehicle Unit-Mobility Mesh	80-100MB	160-200MB
2	2002a	4 x 4	Outdoor Radio-Multi Hop Repeater	140-160MB	280-320MB
	2002b	4 x 4	Outdoor Radio-Mesh	140-160MB	280-320MB
	2002c	4 x 4	Vehicle Unit-Mobility Mesh	140-160MB	280-320MB
	2002d	4 x 4	Outdoor Radio-Mobility Mesh	140-160MB	280-320MB
3	2003a	6 x 6	Outdoor Radio-Multi Hop Repeater	140-160MB	280-320MB
	2003b	6 x 6	Outdoor Radio-Mesh	140-160MB	280-320MB
	2003c	6 x 6	Vehicle Unit-Mobility Mesh	140-160MB	280-320MB
	2003d	6 x 6	Outdoor Radio-Mobility Mesh	140-160MB	280-320MB

- Mesh vs Multi hope repeater is a Software option set up.
- The Vehicle unit is a special unit to establish temporary links for special events and emergency type links.

Configurations:

- **Multi-hop Repeater 4x4 MIMO 11n radio (Dual RF) with Fast Data Switching**
- **General 4x4 MIMO 11n radio (Dual RF) without Fast Data Switching**
- **General 2x2 MIMO 11n radios back to back combined by a switch**
- **General 2x2 MIMO 11n radios with WDS repeater mode**

Applicable Standards:

Ethernet	**IEEE802.3 / 802.3u / 802.3a (1000 Base-T)** **IEEE802.1d (STP)/ 802.1w (RSTP)/ 802.1s (MSTP)** **IEEE802.1q (Vlan) / IEEE802.1p (Layer 2 QOS)**
Wireless	**IEEE802.101a/b/g/n; IEEE802.11h (DFS)**
Ethernet interface	**10/100/1000 Base-T**
Physical:	**RJ-45 port with M25 cable gland**

Standard Package includes:

- **EAH2000-25 IEEE802.11a/b/g/n outdoor radio**
- **48VDC Passive PoE Injector**
- **M25 Waterproof connector for SFTP cable**
- **Pole / Wall Stainless Steel mounting bracket Kit**
- **Power cord and 48VDC power adaptor**
- **Water-resistant adhesive tape**
- **Quick installation guide**
- **Installation software**
- **Warranty 1 Year (2 yr extended available)**

WORLD HQ: 1702L Meridian Ave. Suite 127, San Jose, Ca 95125, U.S.A.
Tel: (408) 266-7404 FAX: (408) 266-4483
WEB: www.raditek.com E-mail: sales@raditek.com

IP RADIO: 300Mbps (to 6x6) MIMO, OFDM, Outdoor. Non Line of Site (NLOS), Wi-Fi 802.11a/b/g/n, Multi-Hop Repeater, Low Latency, Backhaul for 4G and LTE networks Up to 3 TR / unit, 2.4 or 5.8GHz

Management	
Configuration **Firmware Upgrade** **CLI commands**	**Web management (HTTPS) / Telnet / SSH /** **SNMP V1/V2, standard / private MIBs** **Event syslog** **Management VLAN ID** **Time setting (Current time, time zone & NTP client)** **Firmware upgrade / downgrade via FTP / WEB / SNMP / Layer 2 / Batch process** **Ping watch dog** **Dual Configuration files / Factory Default** **Multiple Level Management**
Security & Access Control	**Static WEP up to 152 bits** **WPA / WPA2 PSK / EAP with TKIP / CCMP AES based Encryption** **IEEE 802.1x EAP-MD5 / EAP-TLS / EAP-TTLS** **MAC Address ACL (Access Control List)** **Client access number control + client isolation** **Hidden ESSID** **Vlan priority + Bandwidth control**
Hardware	
Size	**259 x 250 x 75mm Aluminum diecast housing.**
Weight	**<1.98 Kg**
Power supply	**48VDC Passive POE**
Power consumption	**RAD-LINK 2001: 17W Max.** **RAD-LINK 2002: 21W Max.** **RAD-LINK 2003. 25W typ**
Environment	
Cover grade	**Waterproof: IP-68 waterproof**
Lighting protection	
Operating temperature	**-35°C ~ 70°C (-31°F ~ 158°F)**
Storage temperature	**-40°C ~ 85°C (-40°F ~ 185°F)**
Humidity	**Max 95% non-condensing**
Wind survival	**180km/h**

Compliant Standards

- FCC
- IEC61000-4-5 (4KV/2KA)

WORLD HQ: 1702L Meridian Ave. Suite 127, San Jose, Ca 95125, U.S.A.
Tel: (408) 266-7404 FAX: (408) 266-4483
WEB: www.raditek.com E-mail: sales@raditek.com

IP RADIO: 300Mbps (to 6x6) MIMO, OFDM, Outdoor. Non Line of Site (NLOS), Wi-Fi 802.11a/b/g/n, Multi-Hop Repeater, Low Latency, Backhaul for 4G and LTE networks Up to 3 TR / unit, 2.4 or 5.8GHz

Frequency	USA : 2.400 ~ 2.483 GHz / 5.15 ~ 5.35 GHz / 5.5 ~ 5.7 GHz / 5.725 ~ 5.825 GHz
	Europe: 2.400 ~ 2.483 GHz / 5.15 ~ 5.35 GHz / 5.47 ~ 5.725 GHz (*Most countries in Europe)
	Japan: 2.400 ~ 2.497 GHz / 5.15 ~ 5.35 GHz / 5.47 ~ 5.725 GHz
	China: 2.400 ~ 2.483 GHz / 5.725 ~5.85 GHz

Modulation	Data Rate	IEEE 802.11b		IEEE 802.11a		IEEE 802.11g	
		Output power	Rx Sensitivity	Output power	Rx Sensitivity (1Rx / 2Rx)	Output power	Rx Sensitivity (1Rx / 2Rx)
CCK	1~11Mbpsb	24(±1.5) dBm	-76~ -92dBm	N/A	N/A	N/A	N/A
BPSK 1/2	6Mbps	N/A	N/A	24(±1.5) dBm	-82/-95 dBm	25(±1.5) dBm	-82/-95 dBm
BPSK 3/4	9Mbps	N/A	N/A	24(±1.5) dBm	-81/-95 dBm	25(±1.5) dBm	-81/-95 dBm
QPSK 1/2	12Mbps	N/A	N/A	24(±1.5) dBm	-79/-94 dBm	25(±1.5) dBm	-79/-94 dBm
QPSK 3/4	18Mbps	N/A	N/A	24(±1.5) dBm	-77/-91 dBm	25(±1.5) dBm	-77/-92 dBm
16QAM 1/2	24Mbps	N/A	N/A	24(±1.5) dBm	-74/-88 dBm	25(±1.5) dBm	-74/-90 dBm
16QAM 3/4	36Mbps	N/A	N/A	23(±1.5) dBm	-70/-85 dBm	24(±1.5) dBm	-70/-85 dBm
64QAM 2/3	48Mbps	N/A	N/A	22(±1.5) dBm	-66/-81 dBm	23(±1.5) dBm	-66/-82 dBm
64QAM 3/4	54Mbps	N/A	N/A	21(±1.5) dBm	-65/-79 dBm	22(±1.5) dBm	-65/-80 dBm

MCS Index	IEEE 802.11an /HT20				IEEE 802.11an /HT40			
	Data Rate (Mbps)		Output Power	Rx Sensitivity (1Rx / 2Rx)	Data Rate (Mbps)		Output Power	Rx Sensitivity (1Rx / 2Rx)
	GI=800ns	GI=400ns			GI=800ns	GI=400ns		
MCS0/8	6.5/13	7.2/14.4	24(±1.5) dBm	-82/-94 dBm	13.5/27	15/30	22(±1.5) dBm	-79/-90 dBm
MCS1/9	13/26	14.4/28.9	23(±1.5) dBm	-79/-92 dBm	27/54	30/60	22(±1.5) dBm	-76/-89 dBm
MCS2/10	19.5/39	21.7/43.3	22(±1.5) dBm	-77/-90 dBm	40.5/81	45/90	21(±1.5) dBm	-74/-87 dBm
MCS3/11	26/52	28.9/57.8	21(±1.5) dBm	-74/-87 dBm	54/108	60/120	20(±1.5) dBm	-71/-83 dBm
MCS4/12	39/78	43.3/86.7	20(±1.5) dBm	-70/-84 dBm	81/162	90/180	19(±1.5) dBm	-67/-80 dBm
MCS5/13	52/104	57.8/115.6	19(±1.5) dBm	-66/-80 dBm	108/216	120/240	18(±1.5) dBm	-63/-77 dBm
MCS6/14	58.5/117	65/130.3	18(±1.5) dBm	-65/-78 dBm	121/242	135/270	17(±1.5) dBm	-62/-75 dBm
MCS7/15	65/130	72.2/144.4	18(±1.5) dBm	-64/-76 dBm	135/270	150/300	17(±1.5) dBm	-61/-73 dBm

MCS Index	IEEE 802.11bgn /HT20				IEEE 802.11bgn /HT40			
	Data Rate (Mbps)		Output Power	Rx Sensitivity (1Rx / 2Rx)	Data Rate (Mbps)		Output Power	Rx Sensitivity (1Rx / 2Rx)
	GI=800ns	GI=400ns			GI=800ns	GI=400ns		
MCS0/8	6.5/13	7.2/14.4	25(±1.5) dBm	-82/-95 dBm	13.5/27	15/30	24(±1.5) dBm	-82/-95 dBm
MCS1/9	13/26	14.4/28.9	25(±1.5) dBm	-81/-95 dBm	27/54	30/60	24(±1.5) dBm	-81/-95 dBm
MCS2/10	19.5/39	21.7/43.3	25(±1.5) dBm	-79/-94 dBm	40.5/81	45/90	24(±1.5) dBm	-79/-94 dBm
MCS3/11	26/52	28.9/57.8	25(±1.5) dBm	-77/-91 dBm	54/108	60/120	23(±1.5) dBm	-77/-91 dBm
MCS4/12	39/78	43.3/86.7	24(±1.5) dBm	-74/-88 dBm	81/162	90/180	22(±1.5) dBm	-74/-88 dBm
MCS5/13	52/104	57.8/115.6	23(±1.5) dBm	-70/-85 dBm	108/216	120/240	21(±1.5) dBm	-70/-85 dBm
MCS6/14	58.5/117	65/130.3	22(±1.5) dBm	-66/-81 dBm	121/242	135/270	21(±1.5) dBm	-66/-81 dBm
MCS7/15	65/130	72.2/144.4	21(±1.5) dBm	-65/-79 dBm	135/270	150/300	20(±1.5) dBm	-65/-79 dBm

Specifications:

GORETM Membrane Vents are included to protect the gasketed enclosure. The microporous expanded polytetraflouroethylene (ePTFE) membrane continuously equalizes air pressure between the enclosure interior and ambient; Water, dust, dirt, cleaning agents and most oils are repelled by the oleophobic membrane, thereby protecting the sensitive electronics inside.

The MEMBRANE VENT maintains:

- **Water proof and dust proof to IP69K, protecting sensitive electronics.**
- **High airflow allows pressure equalization to prevent stress on enclosure seals**
- **Water and oil repellant ePTFE membrane is inert, non-shedding, chemically resistant, UV resistant and enclosed in a tough polyamide housing to ensure a long trouble-free service life even in extreme conditions.**

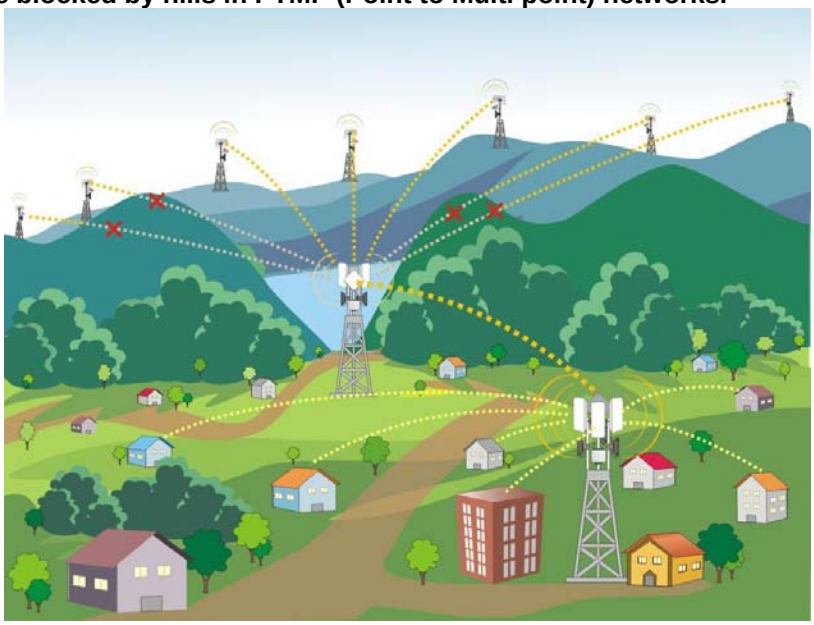
WORLD HQ: 1702L Meridian Ave. Suite 127, San Jose, Ca 95125, U.S.A.
Tel: (408) 266-7404 FAX: (408) 266-4483
WEB: www.raditek.com E-mail: sales@raditek.com

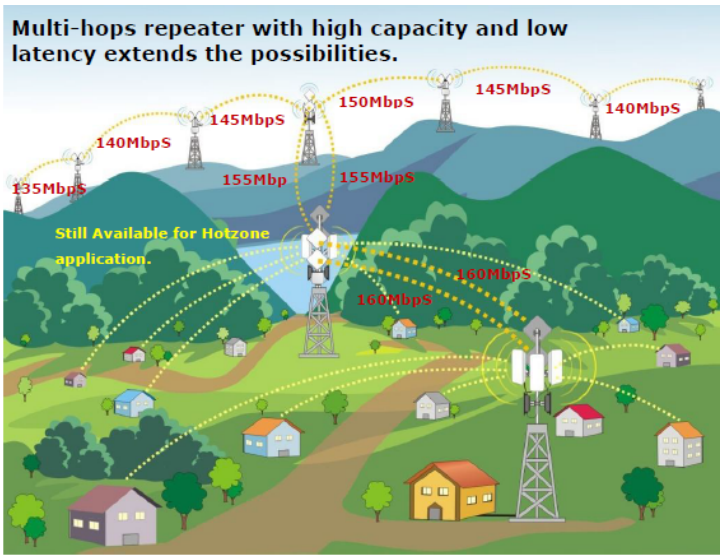
IP RADIO: 300Mbps (to 6x6) MIMO, OFDM, Outdoor. Non Line of Site (NLOS), Wi-Fi 802.11a/b/g/n, Multi-Hop Repeater, Low Latency, Backhaul for 4G and LTE networks Up to 3 TR / unit, 2.4 or 5.8GHz

- **The microporous structure of the ePTFE membrane even keeps salt crystals from passing, minimizing electrical malfunctions caused by salt corrosion.**
- **Moisture vapor permeable to help aid in condensation and fogging reduction.**
- **Screw-in housing with silicone O-ring for versatile and easy installation.**

Ideal for WiFi village/town “Metro-fi”, Point to Multi-Point applications, the signal may be blocked by hills, buildings or trees…etc. OTHER (i.e. competitor’s) TDD WiFi radios limit the possible applications and services, because of the dropped throughput and increased latency in repeater mode.

Generally, other (competitor’s) 2x2 MIMO 11n radios are used back to back combined by a switch
--- Some remote stations are blocked by hills in PTMP (Point to Multi point) networks.

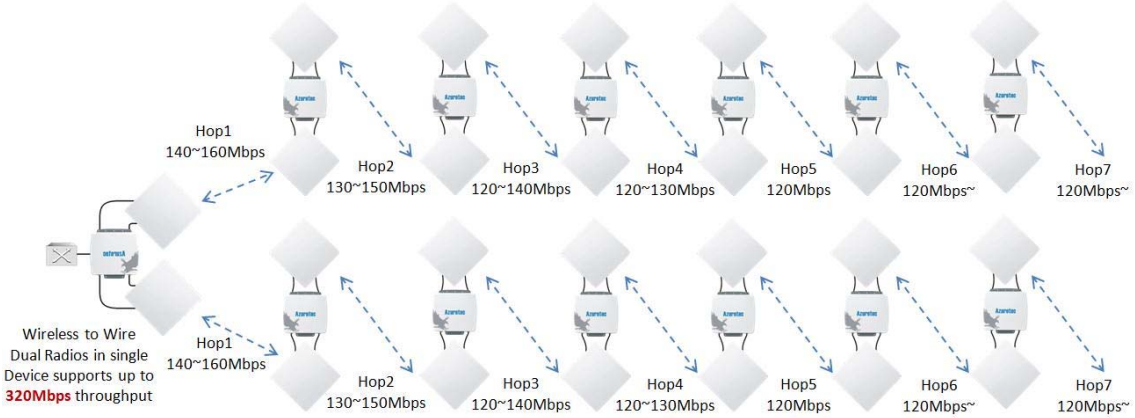




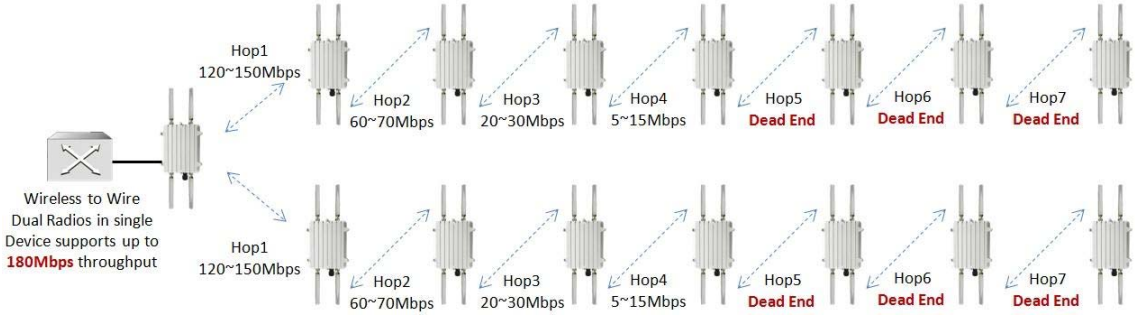
Most other TDD Radios in the world lose 50% throughput and have 100% latency in each repeating step. Usually, the repeating link will become **useless (dead end) after 5~7 hops**. The **RADLINK-200x** series offers a much better solution in multi-hop repeating applications. **RADLINK-200X Multi-hop Repeater; 4x4 MIMO 802.11(abgn) radio (Dual RF) with Fast Data Switching:**

WORLD HQ: 1702L Meridian Ave. Suite 127, San Jose, Ca 95125, U.S.A.
Tel: (408) 266-7404 FAX: (408) 266-4483
WEB: www.raditek.com E-mail: sales@raditek.com

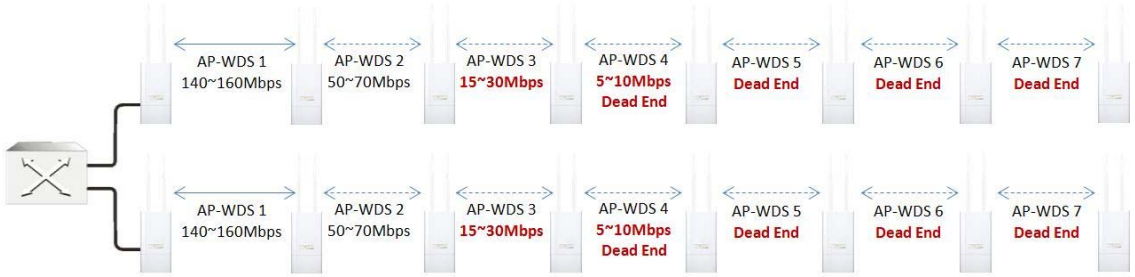
IP RADIO: 300Mbps (to 6x6) MIMO, OFDM, Outdoor. Non Line of Site (NLOS), Wi-Fi 802.11a/b/g/n, Multi-Hop Repeater, Low Latency, Backhaul for 4G and LTE networks Up to 3 TR / unit, 2.4 or 5.8GHz



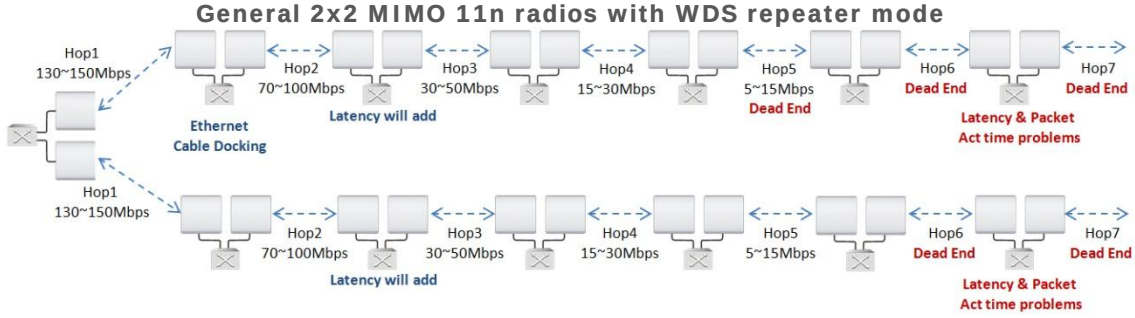
General 4x4 MIMO 11n radio (Dual RF) without Fast Data Switching



General 2x2 MIMO 11n radios back to back combined by a switch



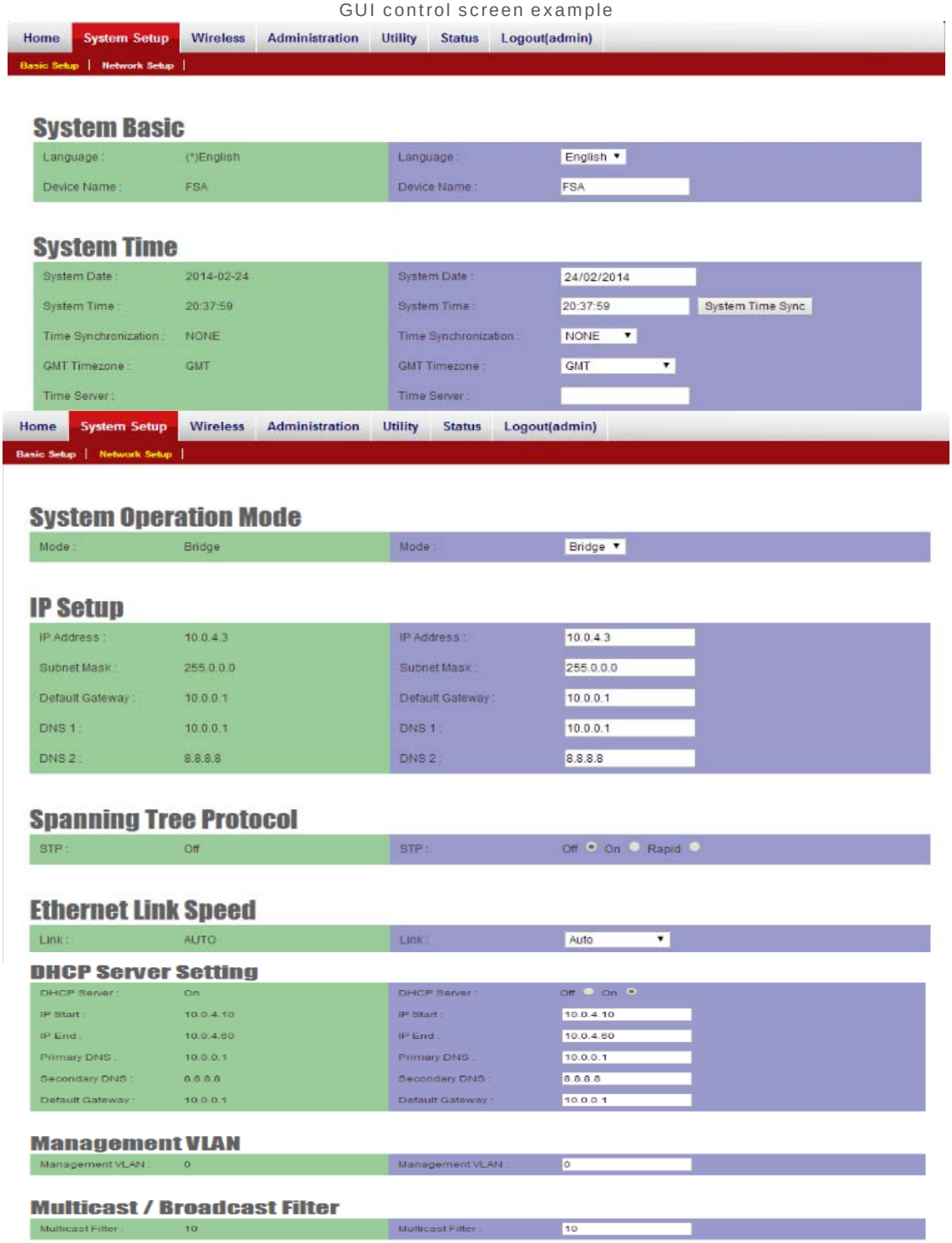
General 2x2 MIMO 11n radios with WDS repeater mode



WORLD HQ: 1702L Meridian Ave. Suite 127, San Jose, Ca 95125, U.S.A.
Tel: (408) 266-7404 FAX: (408) 266-4483
WEB: www.raditek.com E-mail: sales@raditek.com

IP RADIO: 300Mbps (to 6x6) MIMO, OFDM, Outdoor. Non Line of Site (NLOS), Wi-Fi 802.11a/b/g/n, Multi-Hop Repeater, Low Latency, Backhaul for 4G and LTE networks Up to 3 TR / unit, 2.4 or 5.8GHz

GUI control screen example



WORLD HQ: 1702L Meridian Ave. Suite 127, San Jose, Ca 95125, U.S.A.
Tel: (408) 266-7404 FAX: (408) 266-4483
WEB: www.raditek.com E-mail: sales@raditek.com