SkyMesh Mobile Series

2 GHz 4x4 MIMO HT-OFDM PCB Radio
Dual Channels x Tactical Mobile Mesh

SkyMesh 4x4 PCB

Xtreme Robustness

802.11 a/n 28dBm 2 GHz Military Grade

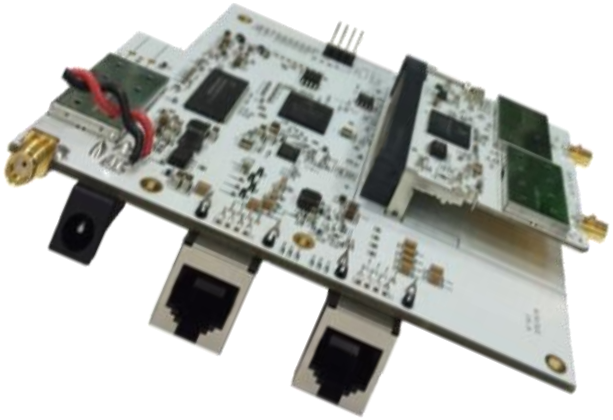
SkyMesh PRO is a high powered 4 x 28 dBm (600mW) 802.11a/n MIMO 4x4 integrated Lightning & ESD* protected band device with robust surge protection capabilities built-in by default. It employs a patent architecture that integrates the protection for the Radio Frequency (RF) antenna port. Power is also be protected with the SafeSurge PRO. Output power and best in class receive sensitivity and gain are designed wFh long distance outdoor wireless networks in mind (PtP and PtMP). Skymesh PRO card is also FCC and CE approved for the 5GHz band.

Product Highlights

- **Proprietary design**
  SkyMesh uses proprietary design, With MIMO High Throughput OFDM (HT-OFDM) and Dual Channels Mobile Mesh Network technology, this radio is a high capacity Mobile Mesh node for 5GHz ISM band wireless deployment. Compare to the traditional Single Channel Mesh Network, the Dual Channels Mobile Mesh Network design makes the Mesh Network working better and more efficiency.

- **RF Port "Lightning" Protection (Built-in)**
  ESD Handling Over 14kV*
  Surge Handling 8/20uS (10kA)*
  The mini PCI card should be properly grounded with the supplied cable to achieve this level of protection.

- **Proprietary Antennas**
  SkyMesh uses special base station antennas design with polarization RHCP & LHCP + Brewster angle and 16 -19 -22 dB gain, panel antenna choice for LanRake design. For Hybrid use with SkyMesh, Drones Mobile CPE for Sky and Land use Omnidirectional Diversity antenna 10 dB gain with V and H polarization and 3 dB gain dual polarization RHCP and LHCP



FEATURES

Transmitter Characteristics (Tx)

Data Rate: MCS0, MCS3, MCS7, MCS15

802.11 a/n: 28 dBm, 25 dBm, 20 dBm, 20 dB

Receiver Characteristics (Rx)

Data Rate : MCS0, MCS3, MCS7, MCS15

802.11 a/n : -96 dBm, -91 dBm, -77 dBm, -77 dBm

GPS

Embedded Interface: SMA Female Connector

Specification

RF connector : 4 MMCX Plug

Dimensions - Weight : 6 cm X 5.4 cm x 0.73 cm

Operating Frequencies : 2.202 - 2.602 MHz a/n

Operational Temperature : -30C to +60C

Power Consumption : 20 Watts (Peak)

Power supply : 10/18 VDC

Humidity : 0% to 95% (non-condensing)

MAC Chipset Atheros : AR9220

OS Compatibility : MobiRake

Included Accessories : 15cm ground wire, 2 screw (3mm length), power cable 20cm.

Bandwidth control : 2.5/3/3.5/4/5/6/7/8/10/15/20/30/40/52 MHz

Power offset : 5 dBm

Warranty : Limited Lifetime Warranty

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RADIO SPECIFICATIONS	
Frequency range	2202 – 2602 MHz
Channel Band Width	2.5 / 3 / 3.5 / 4 / 5 / 6 / 7 / 8 / 10 / 12 / 14 / 15 / 20 / 30 / 40 / 52 MHz
Channel Step	1MHz ~ 52 MHz customized
Frequency Stability	± 2 ppm
Modulation	MIMO HT-OFDM

MCS Index	HT-OFDM / CHBW 20MHz			HT-OFDM / CHBW 40MHz		
	Data Rate (Mbps) GI=800ns	Tx Output Power (dBm)	Rx Sensitivity (BER 1E10-6)	Data Rate (Mbps) GI=800ns	Tx Output Power (dBm)	Rx Sensitivity (BER 1E10-6)
MCS8	6.5/13	28(±1.5)	-94 dBm	13.5/27	28(±1.5)	-90 dBm
MCS9	13/26	28(±1.5)	-92 dBm	27/54	28(±1.5)	-89 dBm
MCS10	19.5/39	28(±1.5)	-90 dBm	40.5/81	28(±1.5)	-87 dBm
MCS11	26/52	27(±1.5)	-87 dBm	54/108	27(±1.5)	-84 dBm
MCS12	39/78	25(±1.5)	-84 dBm	81/162	25(±1.5)	-81 dBm
MCS13	52/104	23(±1.5)	-80 dBm	108/216	23(±1.5)	-78 dBm
MCS14	58.5/117	23(±1.5)	-78 dBm	121.5/243	23(±1.5)	-76 dBm
MCS15	65/130	23(±1.5)	-76 dBm	135/270	23(±1.5)	-74 dBm

*28dBm Peak Power @ 2302 – 2512 MHz, 2~3dBm gain flatness in the operating frequency range

INTERFACES	
Wireless Interface : 4 x MMCX female Connectors	
GPS Interface: SMA Female Connector	
Ethernet : 2 x 10/100/1000 Base-T RJ-45 ports	
MANAGEABILITY	
Management and Setup	Web-based (Chrome / IE 9.0 or later)
SNMP agents	MIB II
Protocol	TCP/IP, IPX/SPX, NetBEUI
Network Architecture	Tactical Mesh
Antenna Alignment	WEB GUI Local / Remote Information
Radio Locator	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 ℃
Storage Temperature	-30~70 ℃
Humidity	95% non-condensing
POWER SUPPLY & CONSUMPTION	
Power Supply : DC 9 – 24V DC (Jack or 2pins header) Power Consumption : 19 Watts (peak)	
PHYSICAL	
Dimension (PCB Only)	125 x 105 x 30 ; mm
Weight (PCB Only)	0.105 Kgw
PCB Mounting carrier	161x111x17.6 mm (0.247 kgw)
WARRANTY	
1 YEAR	

ORDERING INFORMATION	
HYCN4055-28	2202 – 2602 MHz, 0.6 W Outdoor 4x4 MIMO HT-OFDM Mobile Mesh radio, 16 software selectable channel BW.
HYCNV4055-28	2202 – 2602 MHz, 0.6 W Outdoor 4x4 MIMO HT-OFDM Mobile Mesh Vehicle radio, 16 software selectable channel BW
HYCN4005-36	2202 – 2602 MHz, 4 W Outdoor 2x2 MIMO HT-OFDM Mobile Mesh radio, 16 software selectable channel BW

For rapid deployment, temporary networks or resilient fixed infrastructures, no more power supply constraint




Dual channels Mobile Mesh Network for the military vehicles team

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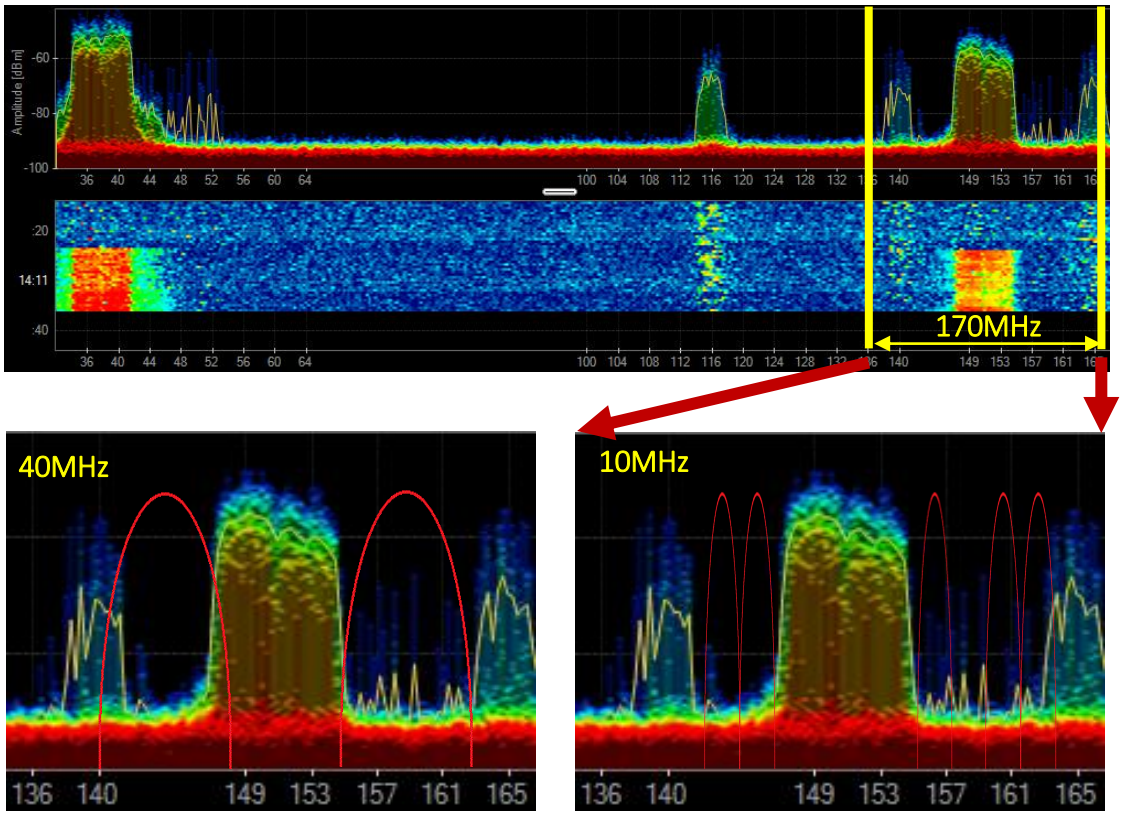
True Value of narrow bandwidth with high spectral efficiency

1. More effective non-overlapping channels for flexible channel Plan
2. More total assumption capacity due to more effective narrow band channels in limited clear band without interferences.

Example: In a 170MHz available range with other interference source



40 MHz channel BW: **1 x effective channel** without interference only, total throughput < 300Mbps.

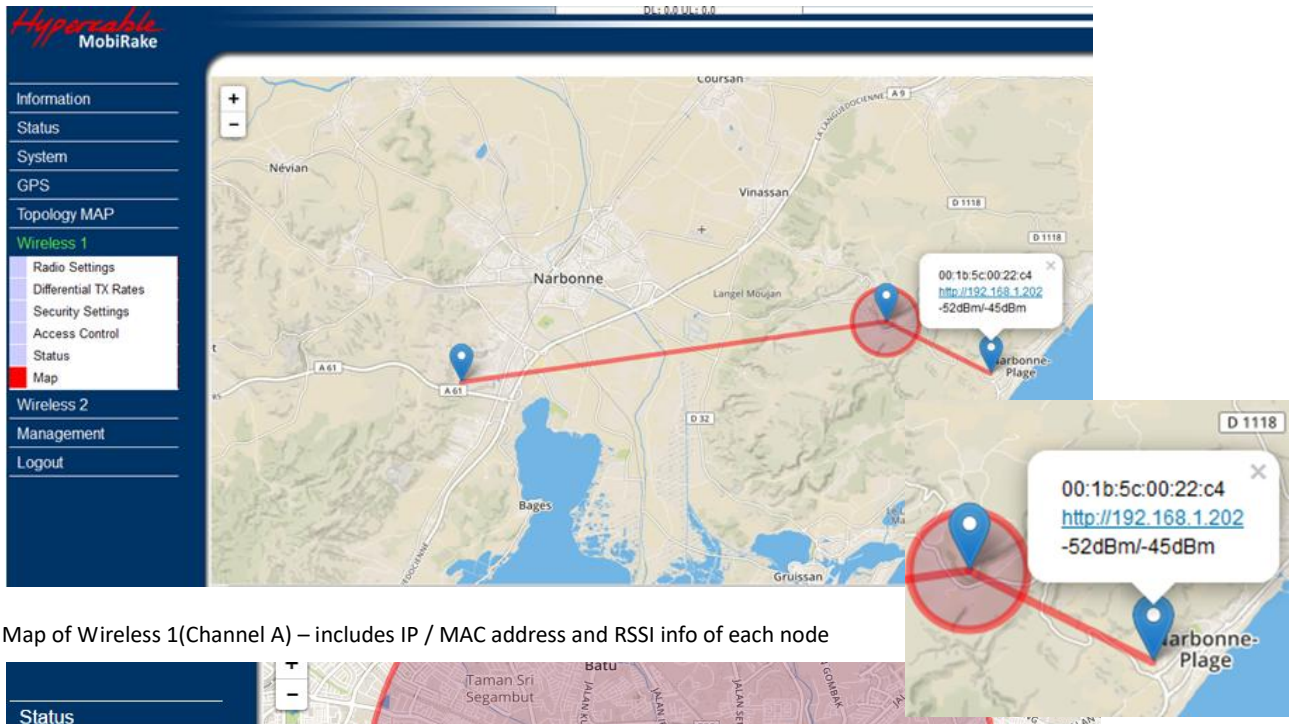
10 MHz channel BW: **6 x effective channels** without interferences, each channel offers 50Mbps TCP throughput. Total throughput about 300Mbps

2.5 MHz channel BW: **24 x effective channels** without interferences, each channel offers 12Mbps TCP throughput. Total throughput about 300Mbps.

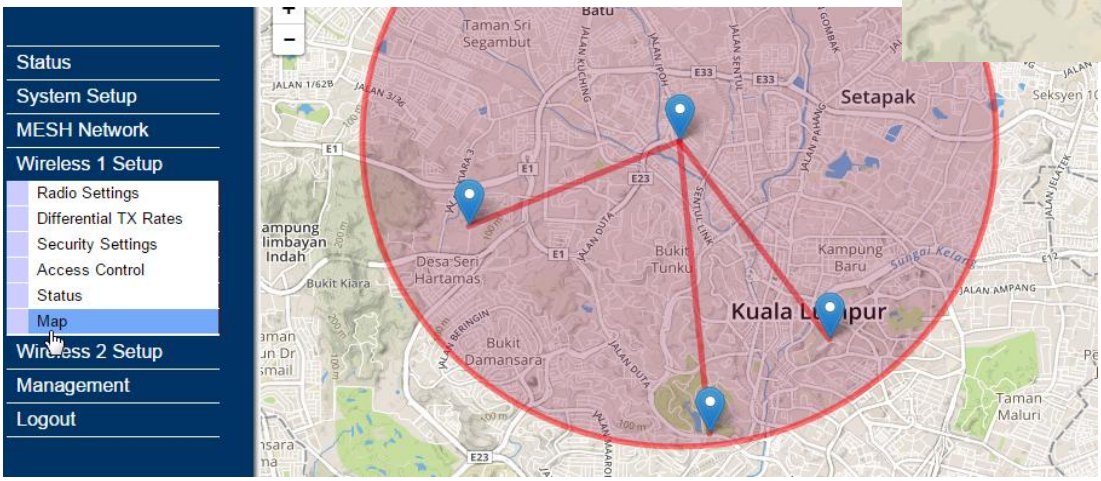
Channel BW (MHz)	2.5	3	3.5	4	5	6	7	8	10	15	20	30	40	52
Real TCP throughput (Mbps)	12	14	17	20	25	30	35	40	51	77	104	158	215	268
Application area	Valuable spectrum				Crowded urban						Rural			

Channel BW & TCP throughput list table

GPS Coordinates Input setting page



Map of Wireless 1(Channel A) – includes IP / MAC address and RSSI info of each node



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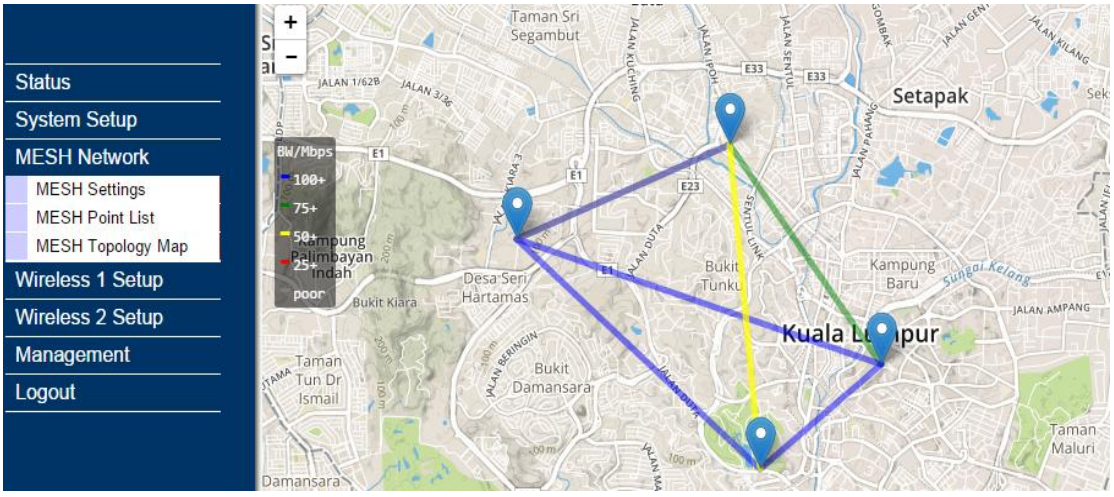

Map of the whole Mesh Topology – includes IP / MAC address and data rate info of the live link