

The Mikrotik logo features the word "Mikrotik" in a stylized, italicized font. The "i" in "Mikro" has a dot, and the "i" in "tik" has a dot. The "T" in "tik" is bold and has a horizontal bar above it. Above the "i" in "Mikro" is a graphic element consisting of two curved lines, resembling a stylized "M" or a signal icon.

*MikroTik*

MUM Indonesia

October 2016

# MikroTik

- Established 1996
- RouterOS created in 1997
- RouterBOARD created in 2002
- First MUM event in Prague 2006
- Biggest MUM in 2015, Indonesia - 2500+ people
- More than 180 employees



The image shows a map of Europe with the Mikrotik logo overlaid in the center. The logo consists of a stylized 'M' with a bird-like shape above it, followed by the word 'Mikrotik' in a bold, italicized sans-serif font. The country of Lithuania is highlighted in a solid green color. The map includes labels for various European countries such as Iceland, Norway, Sweden, Finland, Denmark, Germany, France, Spain, Portugal, and many others.

# Mikrotik



Lithuania

# More than 130 MUMs all Around the World



# MUM Indonesia #8

- 2008, Denpasar - 85
- 2009, Jakarta - 454
- 2011, Jakarta - 796
- 2012, Jakarta - 1104
- 2013, Yogyakarta - 1384
- 2014, Yogyakarta - 1936
- 2015, Yogyakarta - 2526
- 2016, Jakarta - ?

# MikroTik at the MUM

- Arnis Riekstins (CTO)
- Edmunds Aperans (sales)
- Kaspars Krampis (training)
- Sergejs Boginskis (support)



# Schedule

09:00 - 12:15

Presentations

12:15

Lunch with vouchers

13:45 - 17:00

Presentations

17:00 (tomorrow)

Raffle (lottery)

**[mt.lv/agenda](https://mt.lv/agenda)**

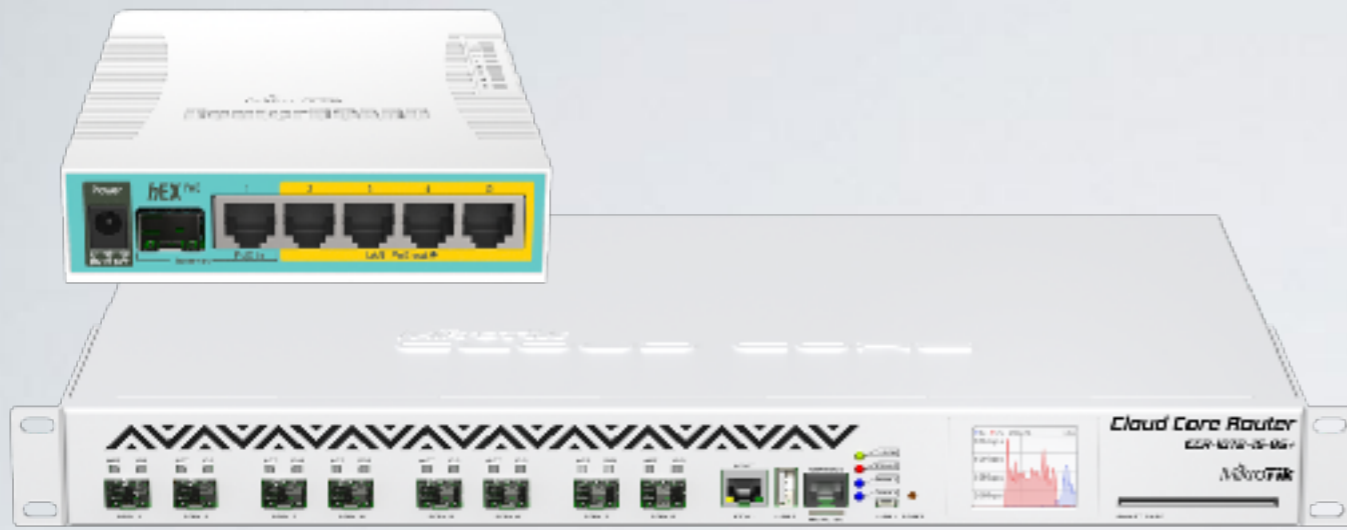
MUM live

[www.youtube.com/mikrotik](http://www.youtube.com/mikrotik)



Special thanks

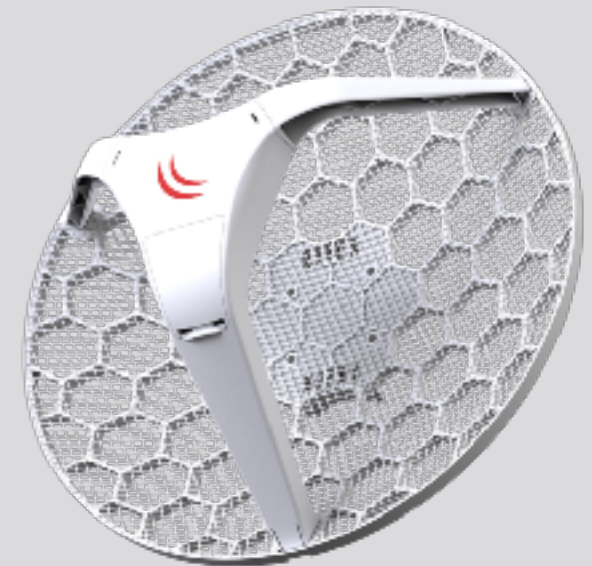
Citraweb Nusa Infomedia



Ethernet



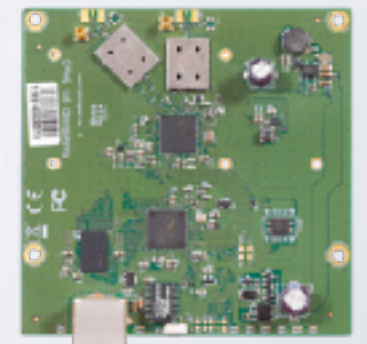
Wireless for home and office



Wireless



Switches



RouterBOARDs

# NEW PRODUCTS

# LHG 5

## Light Head Grid

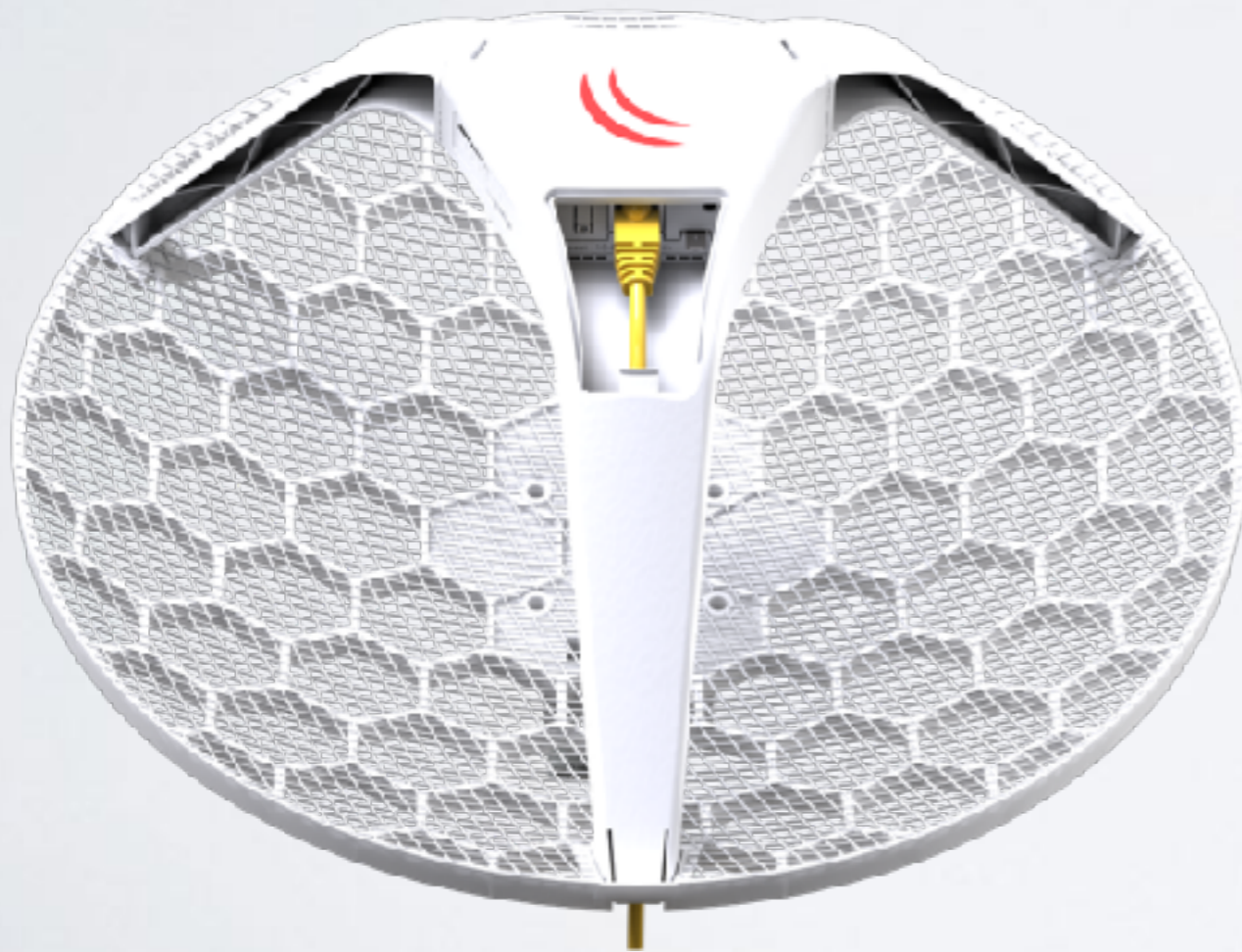
- 24.5 dBi antenna
- Antenna is built into wireless unit
- 802.11a/n dual chain
- Very affordable



now

# LHG 5

Light Head Grid



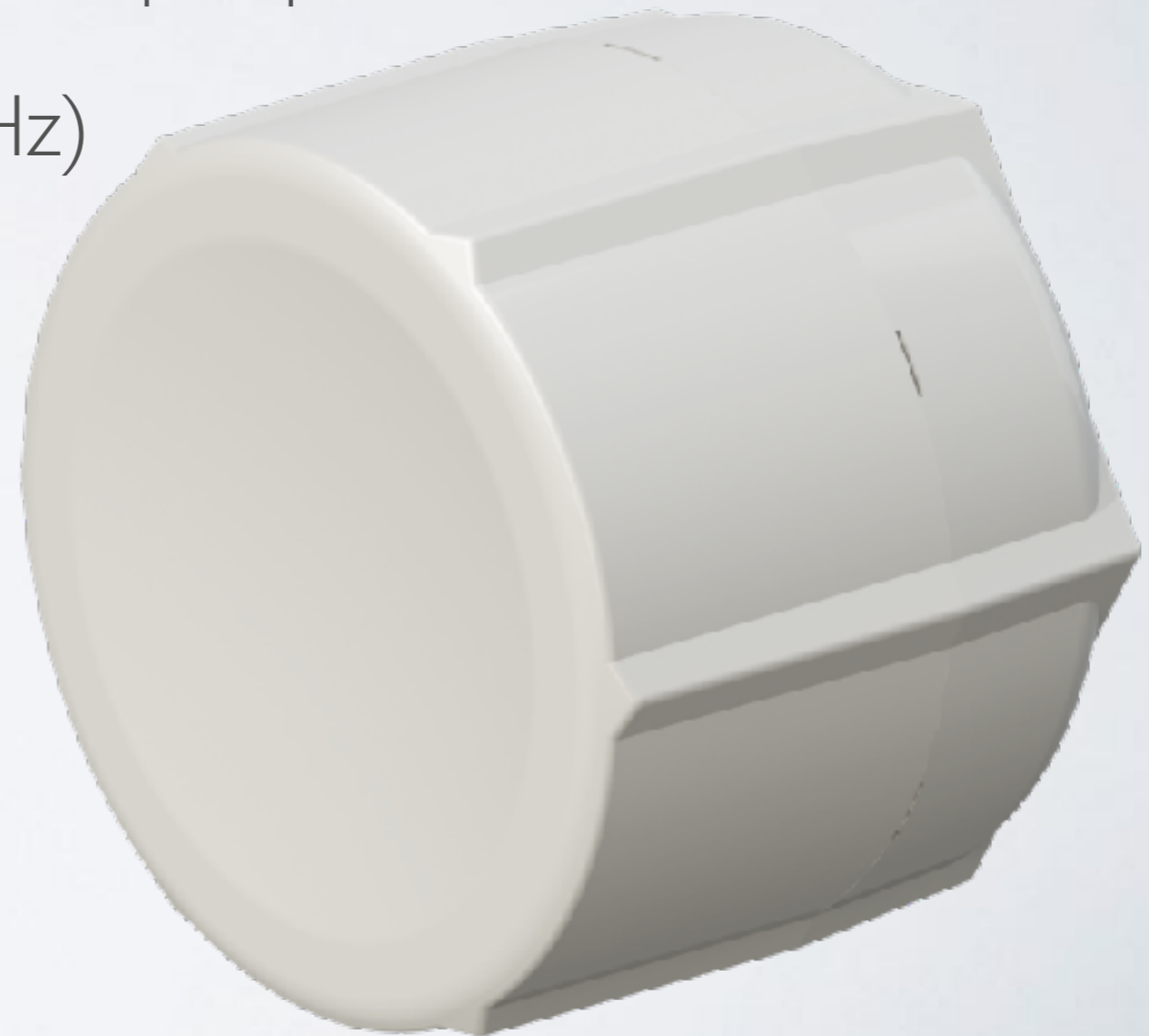
# quickMOUNT pro LHG

- Wall or pole mount adapter
- $\pm 70^\circ$  horizontal adjustment
- $\pm 30^\circ$  vertical adjustment
- Special plastic composite material - anvilNITE (TM)



# SXT LTE

- LTE 3 category modem
- 100Mbps download and 50 Mbps upload
- LTE FDD bands 3 (1800MHz)
- miniSIM slot



# wAP LTE kit

- 2GHz wireless
- LTE antennas
- LTE modem within minipci-e
- weatherproof case
- indoor, outdoor, mobile operation





# Groove 52 ac



- ac update for the popular Groove model

# Metal 52 ac



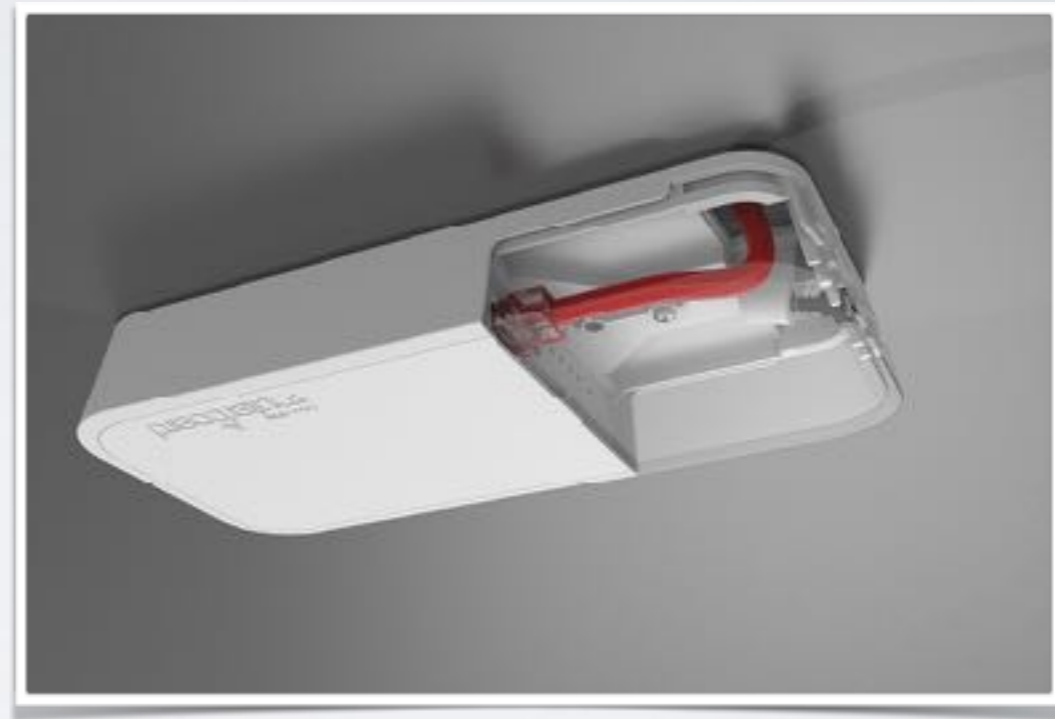
- Waterproof, rugged with a super high output power
- 802.11 b/g/n and 802.11 a/n/ac, 1xGigabit Ethernet

# mAP



- update for small AP, dual chain 2.4GHz wireless
- 802.3 af/at support, PoE out!

# wAP ac



- Wall or ceiling mountable
- Use for hotel, office, etc.
- Gigabit and 802.11ac
- Dual band (simultaneous 2.4GHz and 5GHz)

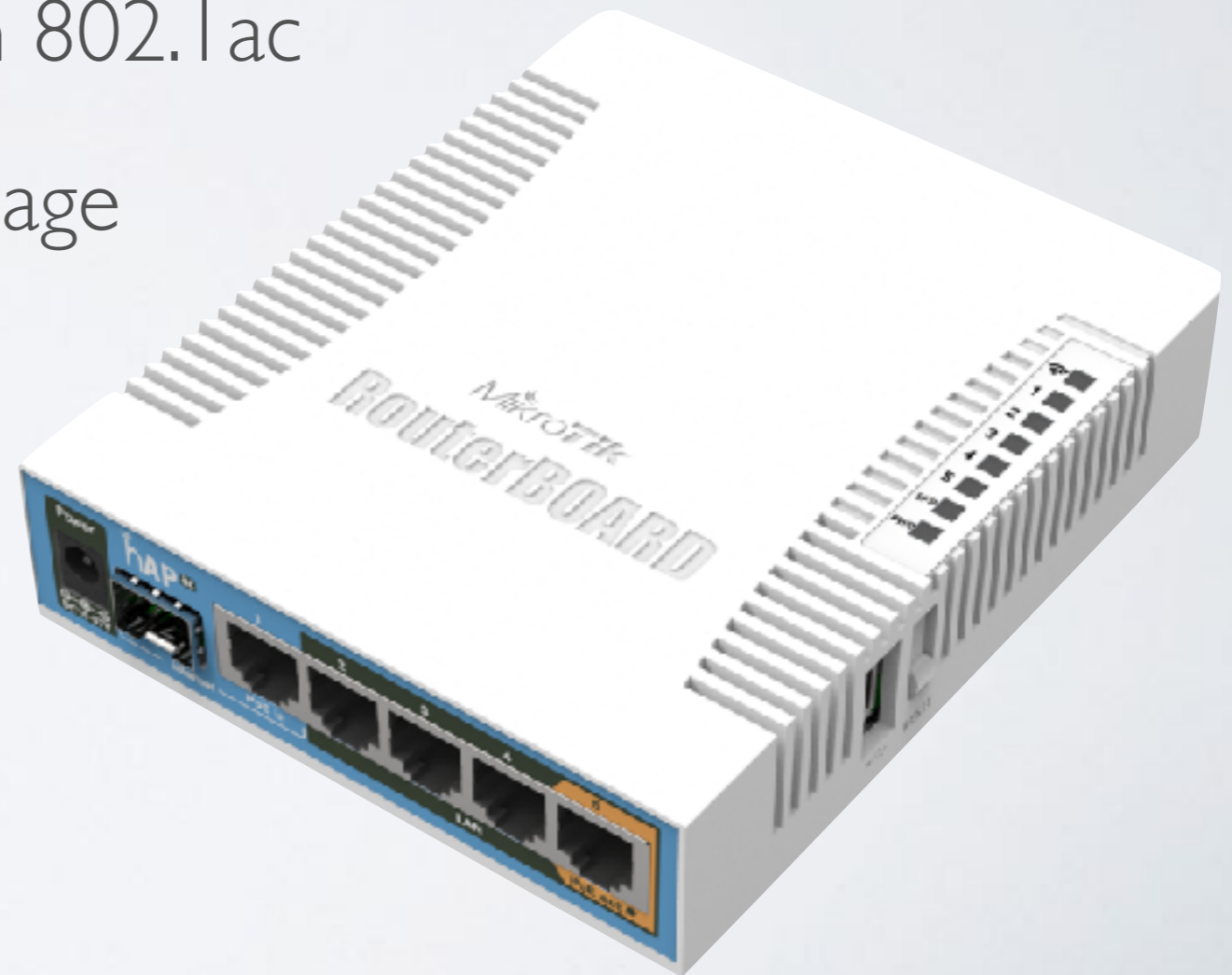
# cAP



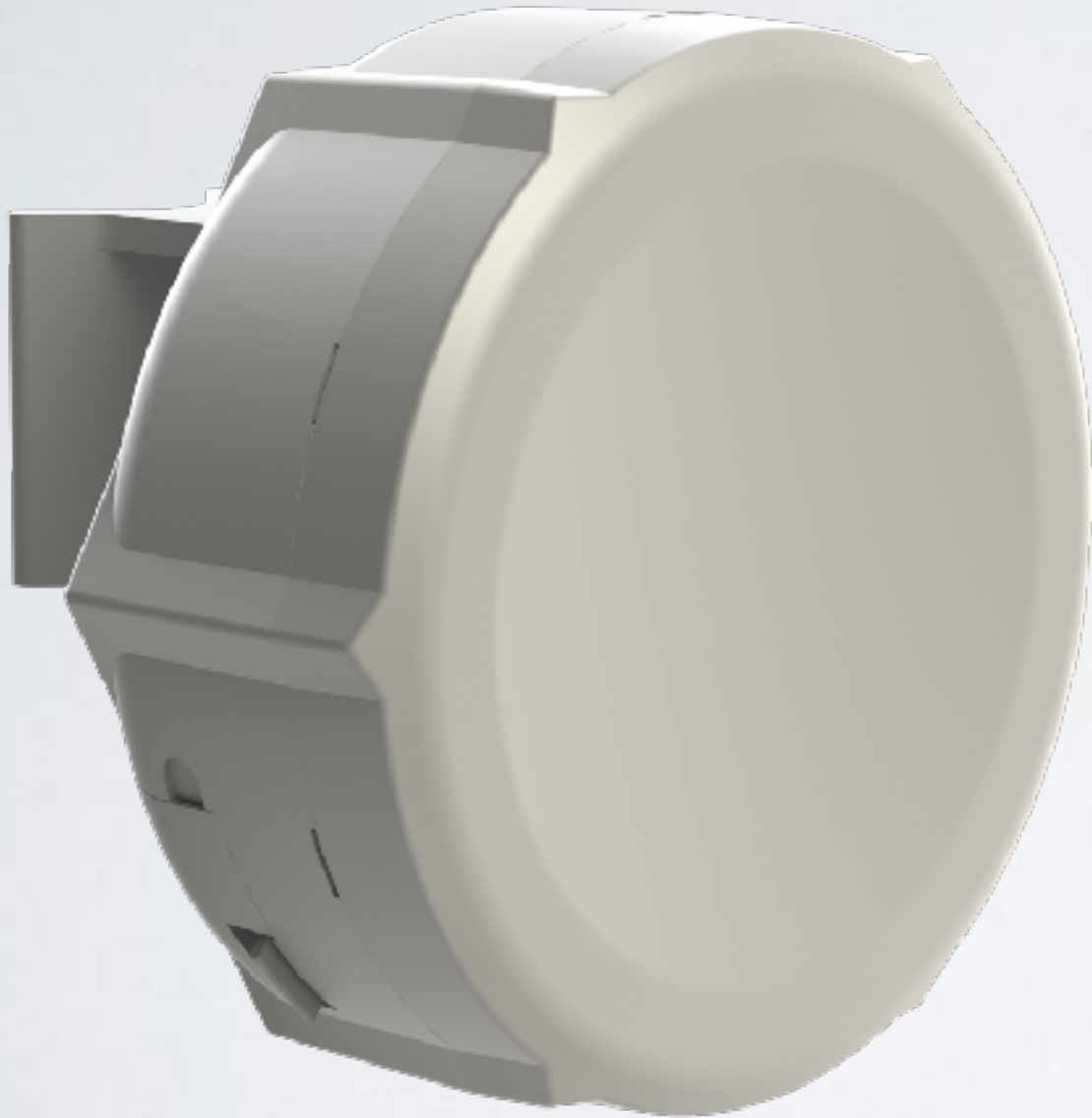
- ceiling AP, dual chain 2.4GHz wireless
- 802.3 af/at support

# hAP ac

- Gigabit dual concurrent home AP
- 2.4GHz high power 3 chain 802.11n
- 5GHz high power 3 chain 802.11ac
- 5x1 Gbps ports & 1 SFP cage
- 720MHz CPU
- PoE-out on port 5

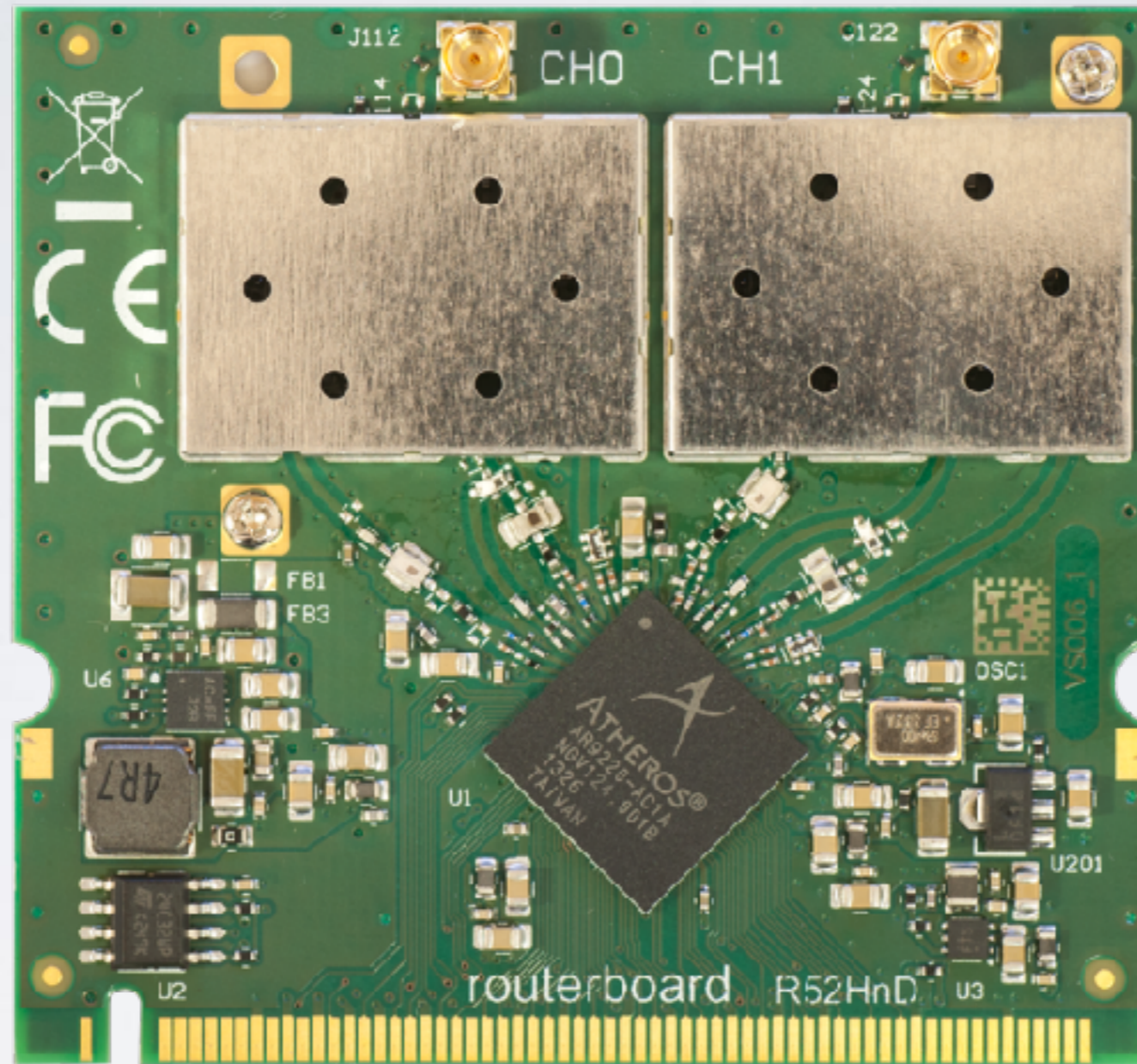


# SXT 6GHz



- 5940-6500 MHz range
- 802.11 a/n
- Antenna gain 16dBi
- Antenna beam width 28

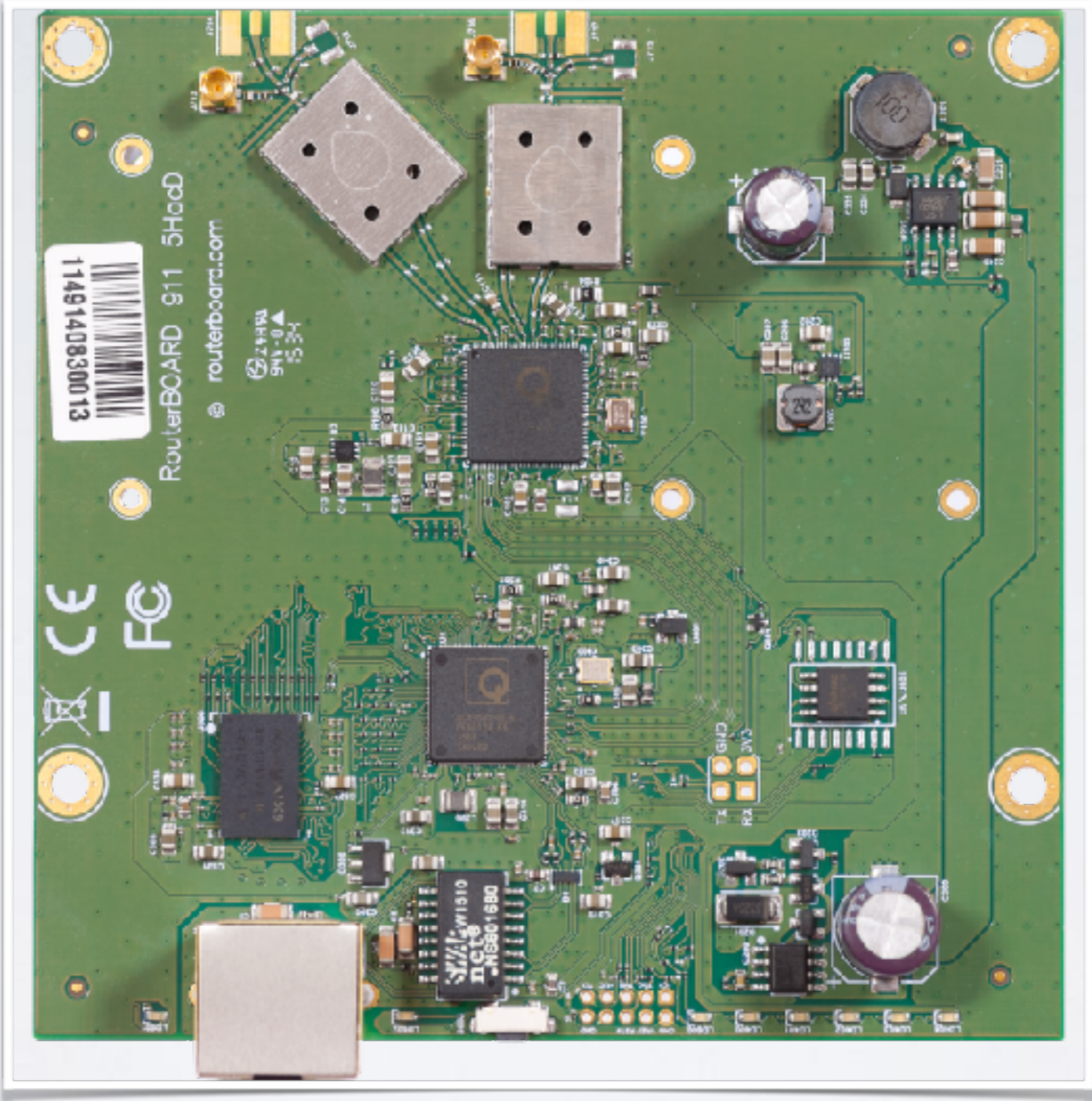
# R52HnD



tx-power 26 dbm, R52H replacement



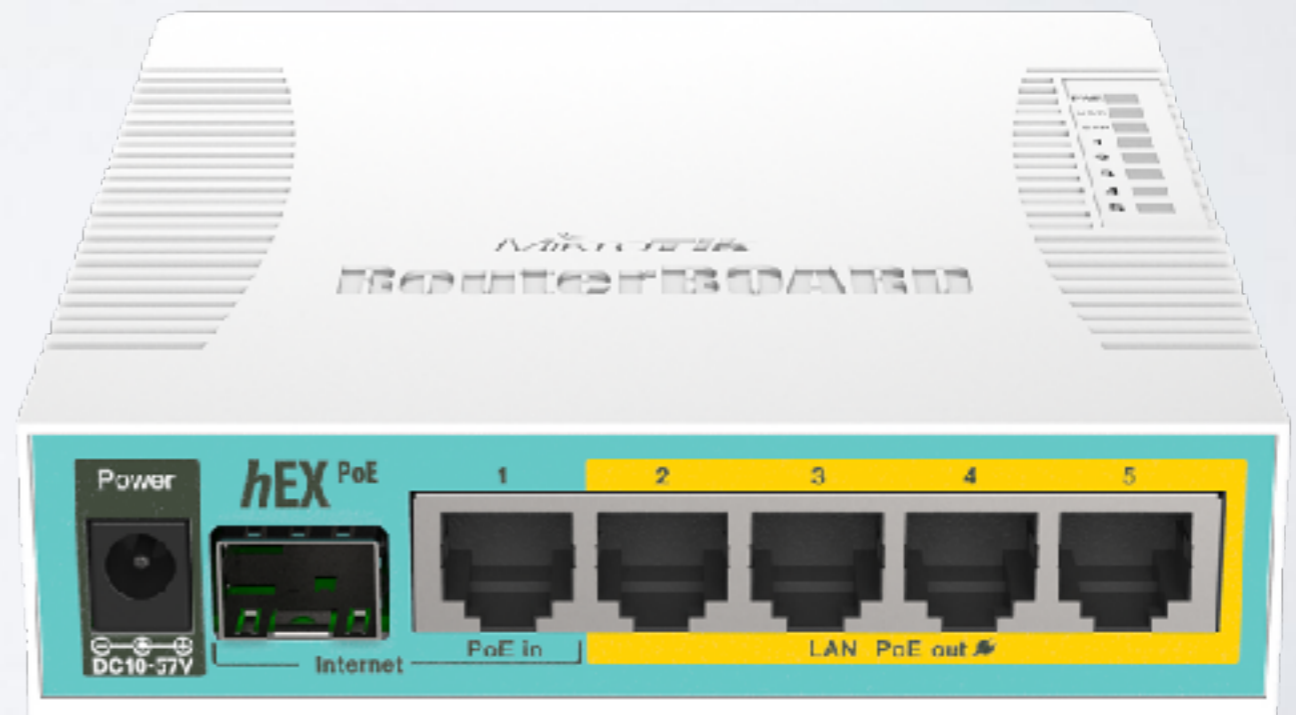
# 911 Lite 5ac



ac update for extremely affordable board

# hEX PoE

- Small Ethernet device
- Five Gbps ports
- Power over Ethernet out on ports 2-5



# OmniTIK 5 ac

- 802.11ac, 2 chains
- 5x1 Gbit Ethernet ports
- 7.5 dBi
- PoE in



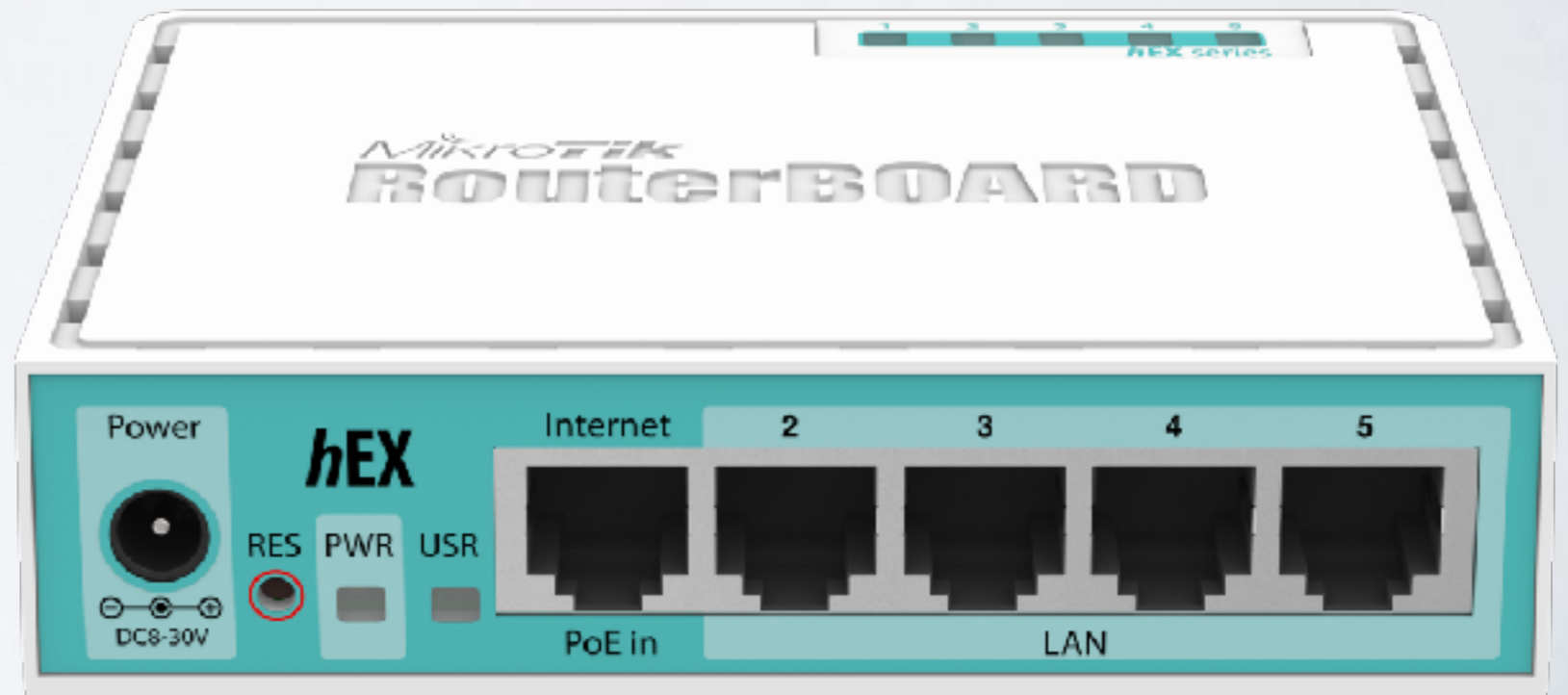
# OmniTIK 5 PoE ac

- 802.11ac, 2 chains
- 5x1 Gbit Ethernet ports
- 7.5 dBi
- PoE in
- PoE out (ports 2-5)



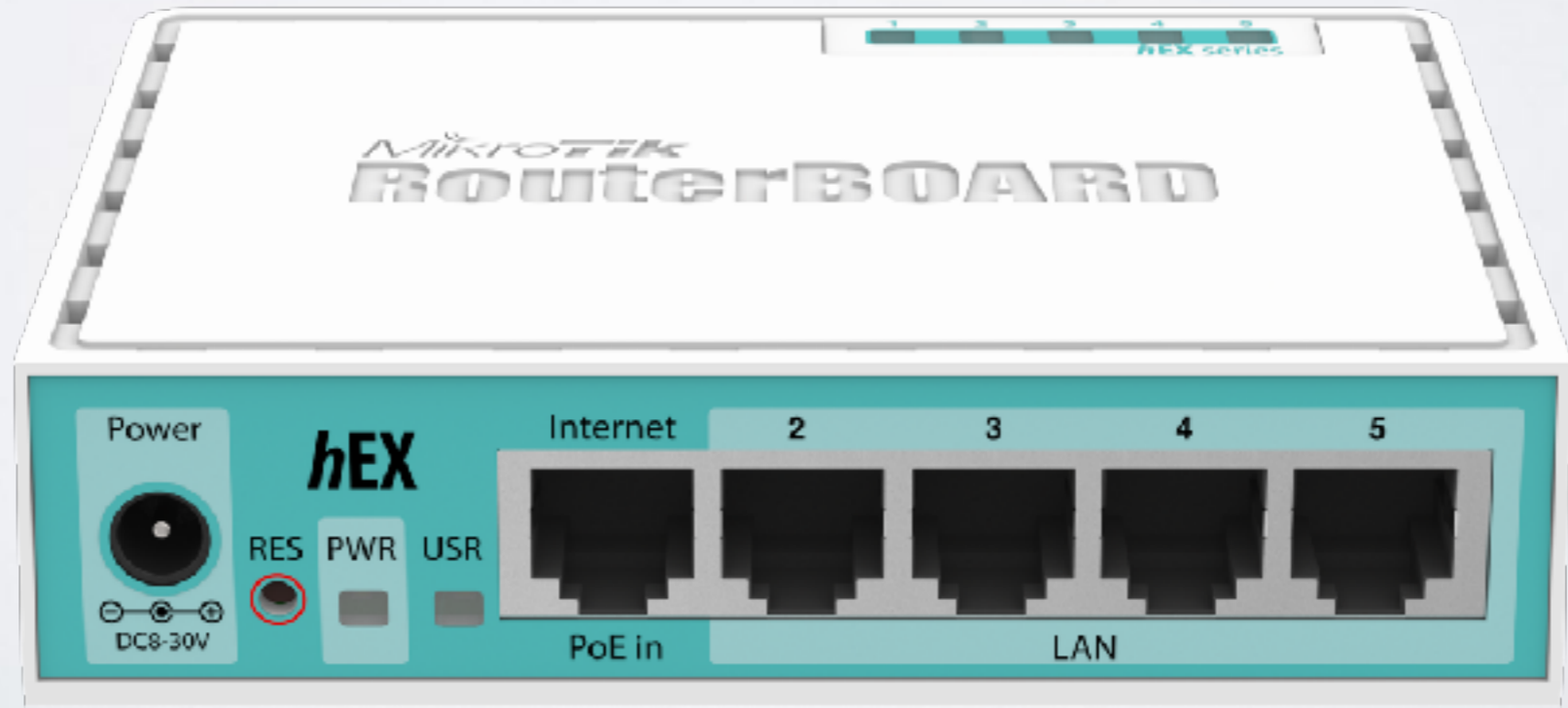
# hEX

- new hEXr3
- very affordable!
- 880 MHz, 2 cores and 4 threads
- hardware acceleration ~470mbps
- same form factor
- same price



# hEX

previous r2	new r3
396 Mbps, bridging 64 bytes	<b>532 Mbps</b>
986 Mbps, bridging 1518 bytes	<b>1640 Mbps</b>
373 Mbps, routing 64 bytes	<b>530 Mbps</b>
396 Mbps, routing 1518 bytes	<b>1640 Mbps</b>
40 Mbps, AES-128 1400 bytes	<b>472 Mbps</b>



# All Products

- Include free software upgrades for life
- Run the same RouterOS software\*
- For more info see **[routerboard.com](http://routerboard.com)**

\*Except RB260GS (SwOS)

# ROUTEROS FEATURES



# CHR

## Cloud Hosted Router

- RouterOS version tailored for running in virtual environments
- Runs on VMware Workstation and ESXi, VirtualBox, HyperV, KVM, XenServer, etc.
- Cloud services - Amazon, Azure and others

# CHR

## AWS Marketplace

1. Choose AMI

2. Choose Instance Type

3. Configure Instance

4. Add Storage

5. Tag Instance

6. Configure Security

### Step 1: Choose an Amazon Machine Image (AMI)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch an instance in your account. You can create an AMI from an existing instance, the Amazon Machine Image (AMI) community, or the AWS Marketplace; or you can select one of your own AMIs.

Quick Start

My AMIs

**AWS Marketplace**

Community AMIs

▼ Categories

All Categories

Software Infrastructure (1)

🔍 Mikrotik

*MikroTik*

Free tier eligible

#### Cloud Hosted Router

★★★★★ (0) | 6.34.1 | Sold by [MikroTik](#)

**Bring Your Own License** + AWS usage fees

Linux/Unix, Other 6.34.1 | 64-bit Amazon Machine Image (AMI) | Updated: 4/7/16

Use the CHR for protecting your cloud servers using RouterOS firewall, for running your own VPN service or ...

[More info](#)

# CHR

## Use cases

- Firewall for your cloud services
- VPN server in the cloud
- The Dude monitoring server
- Simulate networks for learning or training
- And much more

# CHR

## Licensing

License	Speed limit	Price
Free	1 Mbit	FREE
PI	1 Gbit	\$45
PI0	10Gbit	\$95
P-Unlimited	Unlimited	\$250

- 60 day trial available
- Purchased license can be transferred

# CHR

## Licensing

1

Licence

System ID: 6R1ZP/utuJ

Level: free

Next Renewal At:

Deadline At:

Limited Upgrades

OK

Generate New ID

Renew Licence

Renew Licence

Account: mymikrotikcomaccount

Password: \*\*\*\*\*

Level: P1

Start

Stop

Close

done

2

Licence

System ID: 6R1ZP/utuJ

Level: P1

Next Renewal At: Jan/10/2016 21:59:59

Deadline At: Feb/09/2016 21:59:59

Limited Upgrades

OK

Generate New ID

Renew Licence

WinBox → System → License

# CHR

## Licensing

3



### Routers & Wireless

Search...

[home](#)

[software](#)

[hardware](#)

[support](#)

[downloads](#)

[purchase](#)


[training](#)

**[account](#)**

[Overview](#) [Support](#)

[Logout](#)

#### Account Notices

 You must approve your account for creditcard purchases.

[Account authorisation procedure >>>](#)

Current account balance is **\$0**

Prepaid keys available: **0**

#### Generate a NEW software KEY

- purchase a key
- make a demo key

#### For already created software keys

- all keys **or try search**
- replacement key (0)
- request key from another account

#### Cloud Hosted Router (CHR)

- all keys
- orders and invoices

#### Account information

- balance
- change user information
- **hardware orders**

#### Training

- my training sessions(0)
- my certificates(0)
- MikroTik User Meeting

#### Support

- support contact form
- supout.rif viewer

#### Other

- lockpack creator

# CHR

## Licensing


4

[Back To Main Menu]

### User Keys

Show **10** entries

Search:

System ID	Key	Issued	Expires	Level	Transfer	Action	Note
6IR1ZP/utuJ	-----BEGIN MIKROTIK SOFTWARE KEY----- alnRyhu6h1VqgrR4wfrXcyP3MB4BysaE1qMBikaNocTDLHTuK8ppNxddOGCebjU6n1WwL7YhDsfWzcmFA==----- END MIKROTIK SOFTWARE KEY-----	2015-12-09	2016-02-09	P1-Perpetual (Trial version)		<b>Upgrade</b>	

Previous **1** Next

# CHR

## Licensing

5

### Upgrade system license ?

**System ID**      **Level**

6IR1ZP/utuJ

- ✓ Select level
- P1-Perpetual (\$ 45.00 )
- P10-Perpetual (\$ 95.00 )
- P-Unlimited (\$ 250.00 )

System 6IR1ZP/utuJ  
Perpetual Trial version

**You have following prepaid balance keys available to purchase a CHR license:**

P1-Perpetual - 4 keys

[Back](#)

6

### Payment ?

You have selected:      **P1-Perpetual**  
System ID                    **6IR1ZP/utuJ**  
Total price:                    **\$ 54.45**

[Pay using deposit \(left: \\$ 73.51\)](#)

[Pay using CC](#)

[Pay using PayPal](#)

[Pay using Balance key \(4\)](#)

*Note: Price includes VAT 21% because you have specified EU country as your residence. To avoid this you have to enter your VAT registration number in your account settings.*

[Back](#)



# CHR

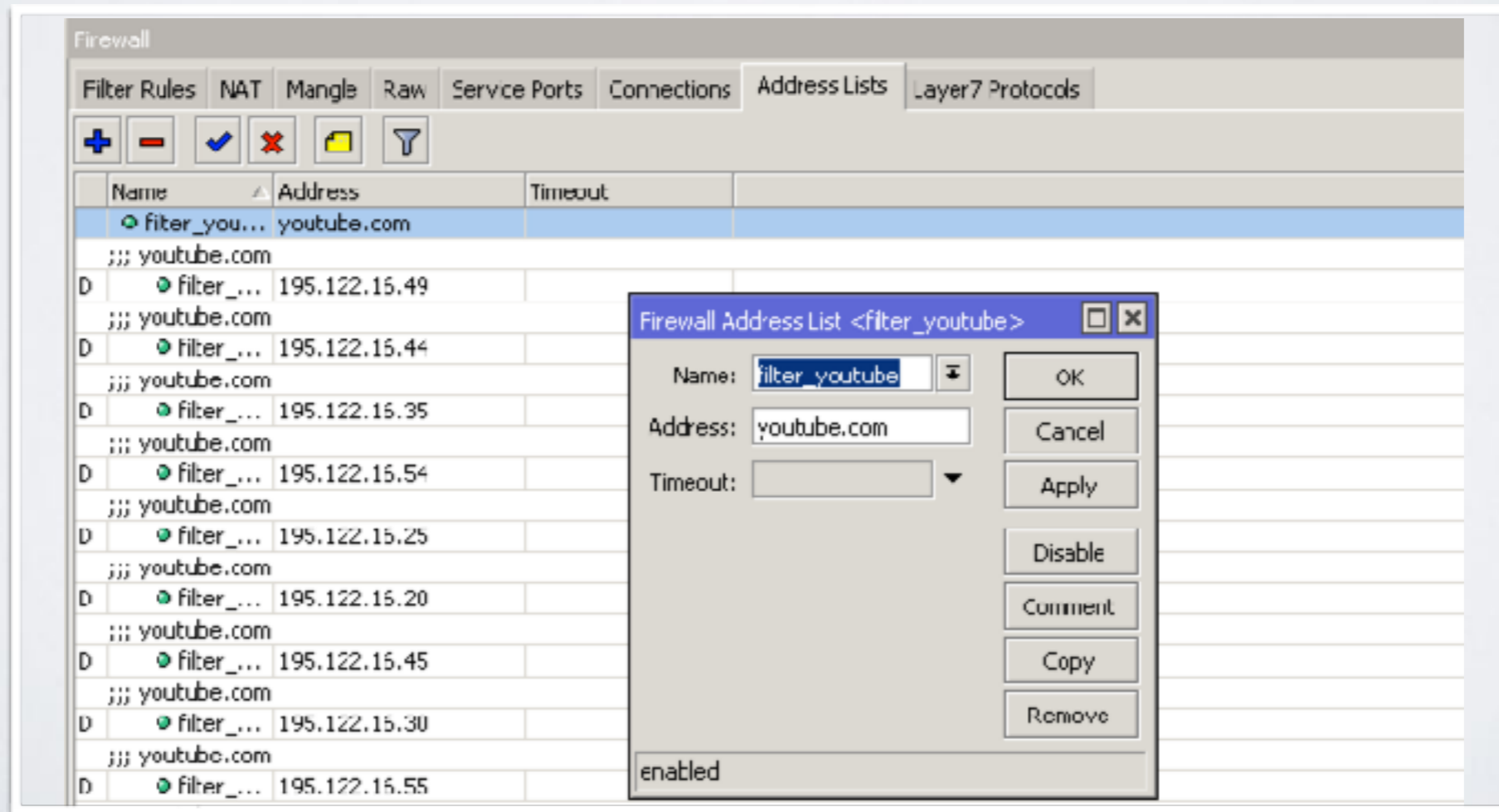
Cloud Hosted Router

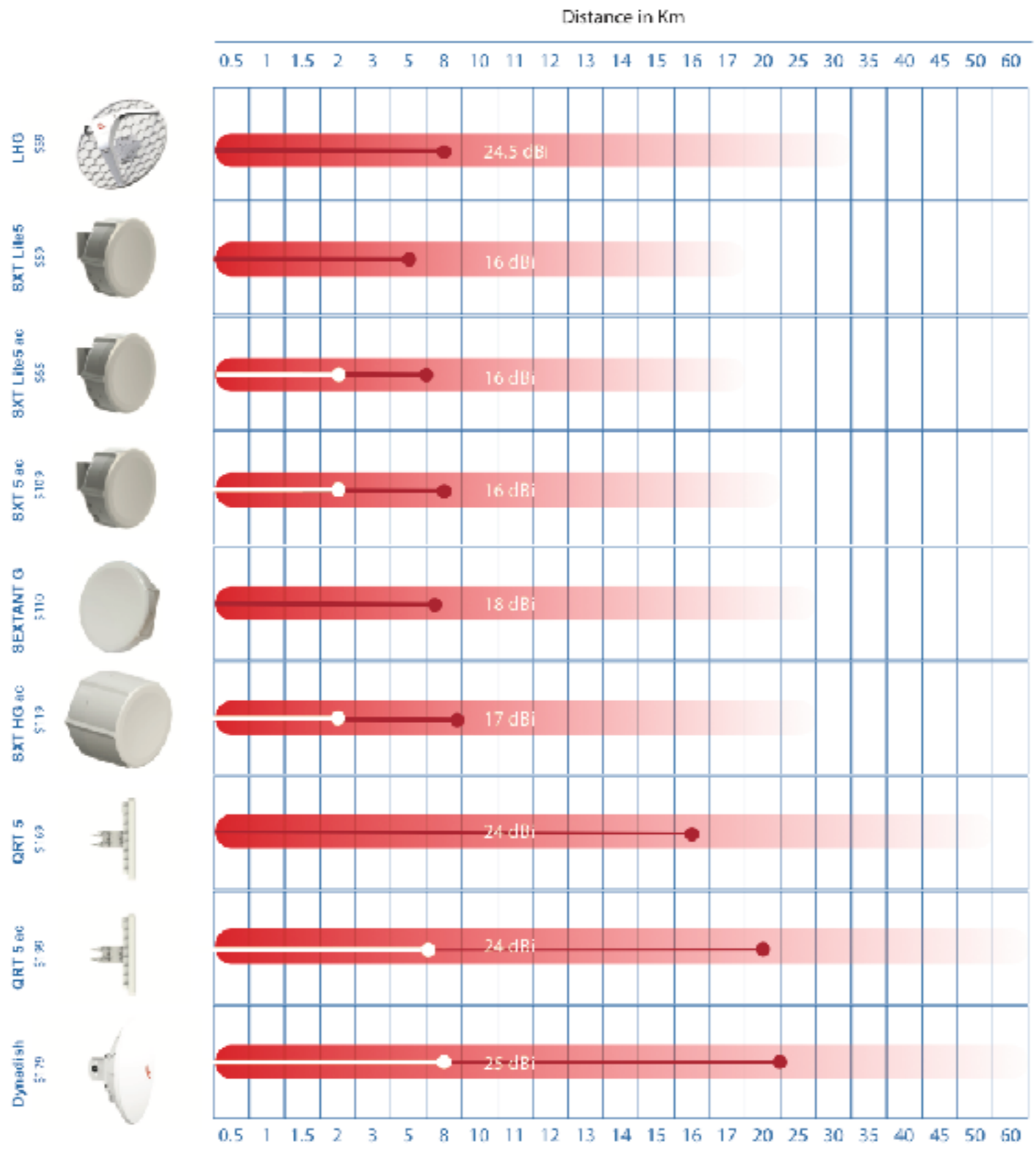
- For more info, see the CHR page on our wiki:  
<http://wiki.mikrotik.com/wiki/Manual:CHR>
- Available on the download page:  
<http://mikrotik.com/download#chr>

RouterOS v6.37 changelog  
**120** entries!

# DNS at address-list

- add DNS name to address-list, router will find addresses automatically
- set appropriate rules at firewall





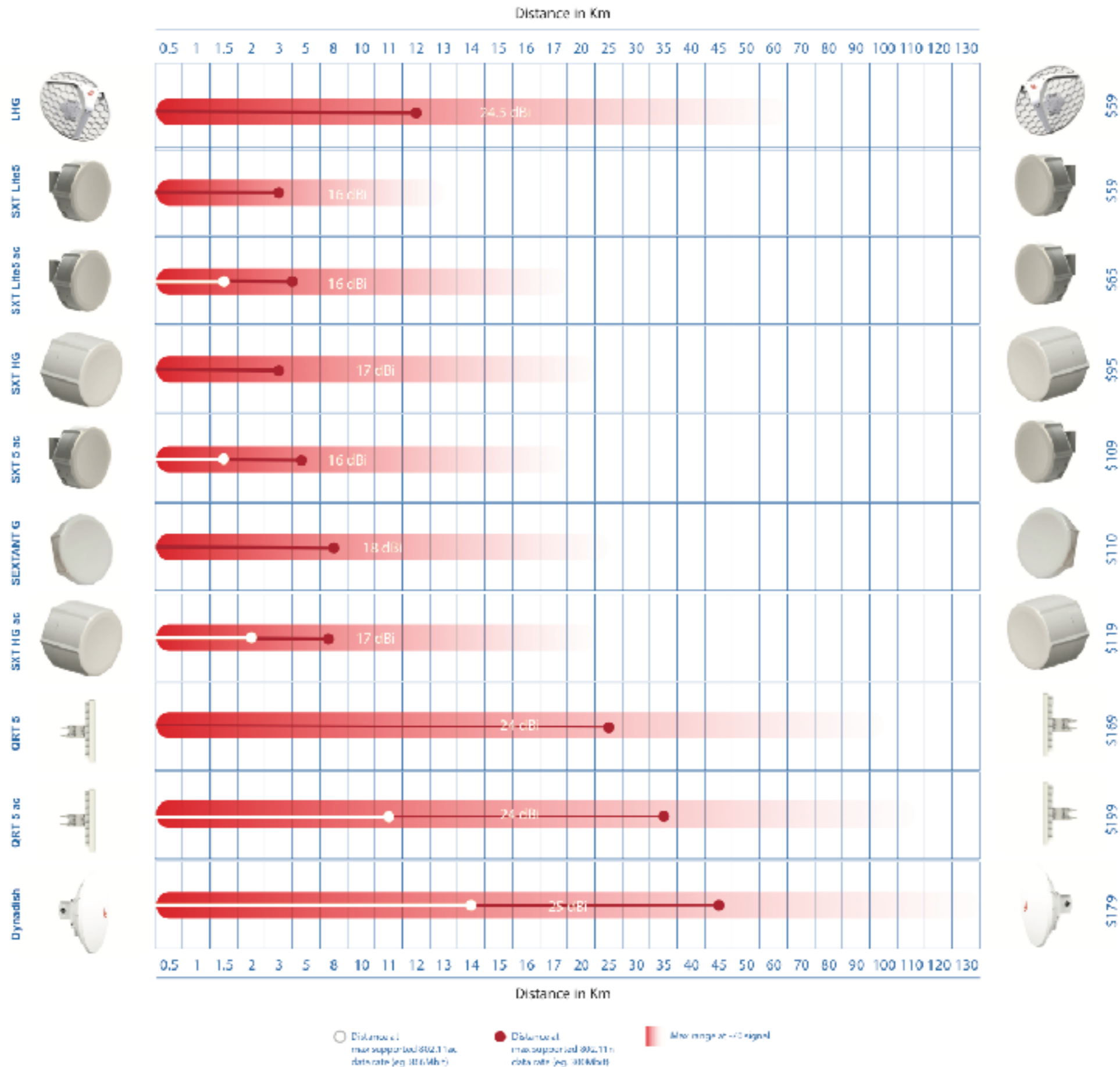
Distance in Km

○ Distance at max supported 300 Nbit/s data rate (eg. 856 Nbit/s)

● Distance at max supported 802.11n data rate (eg. 300 Nbit/s)

■ Maximum range at 70 signal

Note: line of sight, interference, alignment, weather and other outside factors will affect the wireless link performance and possible distance



Note: line of sight, interference, alignment, weather and other outside factors will affect the wireless link performance and possible distance

# Need Help?

- Ask a local **distributor**
- Read the manual **wiki.mikrotik.com**
- Email **support@mikrotik.com**
- Hire a **consultant**
- Attend a training class or join an Academy class in a University

# After the MUM

- All presentations - [mum.mikrotik.com](http://mum.mikrotik.com)
- Video - [youtube.com/mikrotik](https://youtube.com/mikrotik)
- License will be e-mailed

Enjoy the MUM!



The logo for MicroTik features the word "MicroTik" in a stylized, italicized font. The "Micro" part is in a lighter weight, while "Tik" is in a bold, italicized weight. Above the letter "i" in "Micro", there are three curved lines that resemble a stylized signal or a wave. The entire logo is rendered in a dark gray color and is reflected on a light gray surface below it.

*MicroTik*