

The Mikrotik logo features a stylized black crescent moon above the word "Mikrotik". "Mikro" is in a black, italicized sans-serif font, "o" is a simple black circle, and "tik" is in a bold, italicized sans-serif font.

*Mikro***oTik**

**We will be back at 14:15**

MUM UK

November 2016



MUM United Kingdom

November 2016



# More than 130 MUMs all Around the World





# 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 crescent moon 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. Other countries are labeled in black text, including Iceland, Norway, Sweden, Finland, Denmark, Estonia, Russia, Ireland, United Kingdom, Netherlands, Belgium, Luxembourg, Germany, Poland, Belarus, Ukraine, France, Switzerland, Liechtenstein, Austria, Slovakia, Hungary, Czech Republic, Slovenia, Croatia, Romania, Moldova, Georgia, Armenia, Monaco, San Marino, Bosnia and Herzegovina, Serbia, Bulgaria, Portugal, Spain, Andorra, Italy, Vatican City, Montenegro, Albania, Macedonia, Greece, Turkey, and Syria.

**Mikrotik**



Lithuania



# MikroTik at the MUM

- Karlis Oga (sales)
- Normunds Rustanovics (support)
- Sergejs Boginskis (support, training)





# Schedule

09:00 - 12:15

Presentations

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12:45

Lunch (with vouchers)

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14:15 - 17:15

Presentations

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17:15

Raffle (lottery)

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

MUM live

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

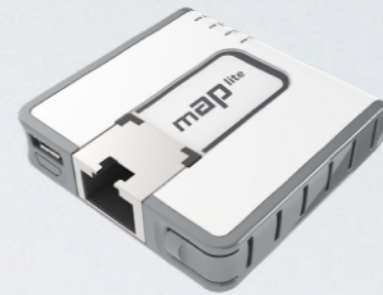


# Special Thanks!

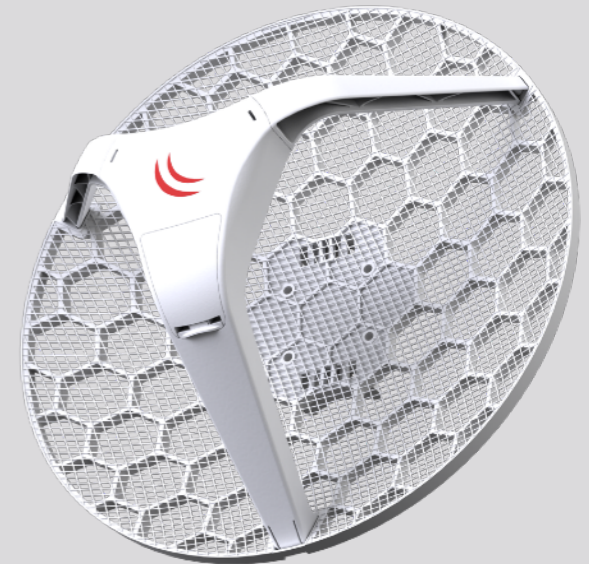
Multithread Consultants  
Ron Touw



Ethernet



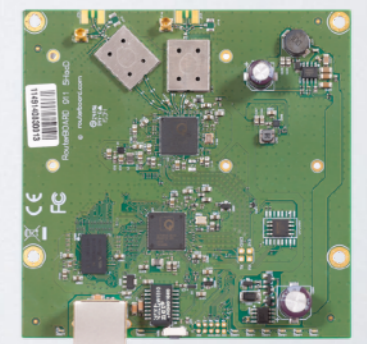
Wireless for home and office



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

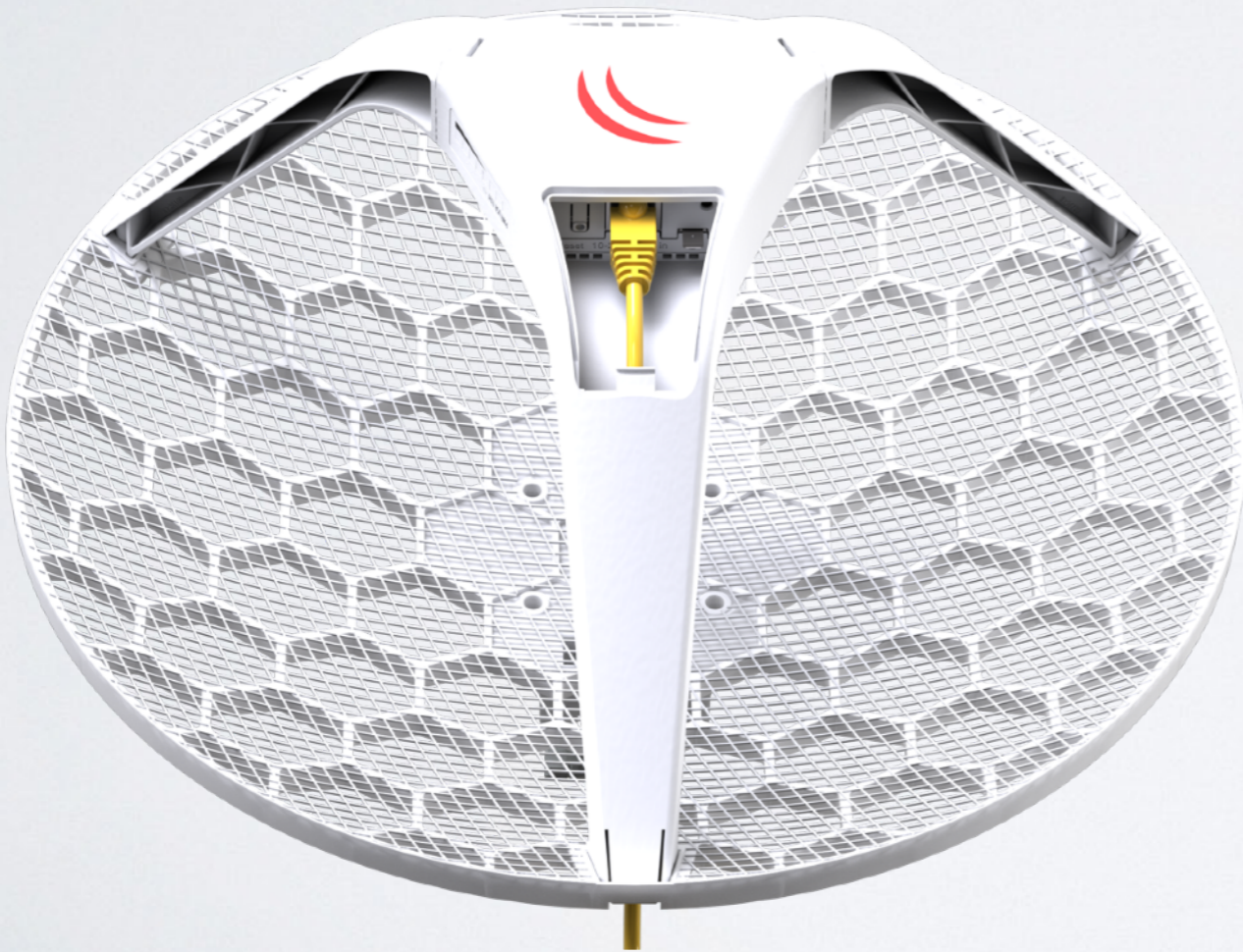




now

# LHG 5

Light Head Grid





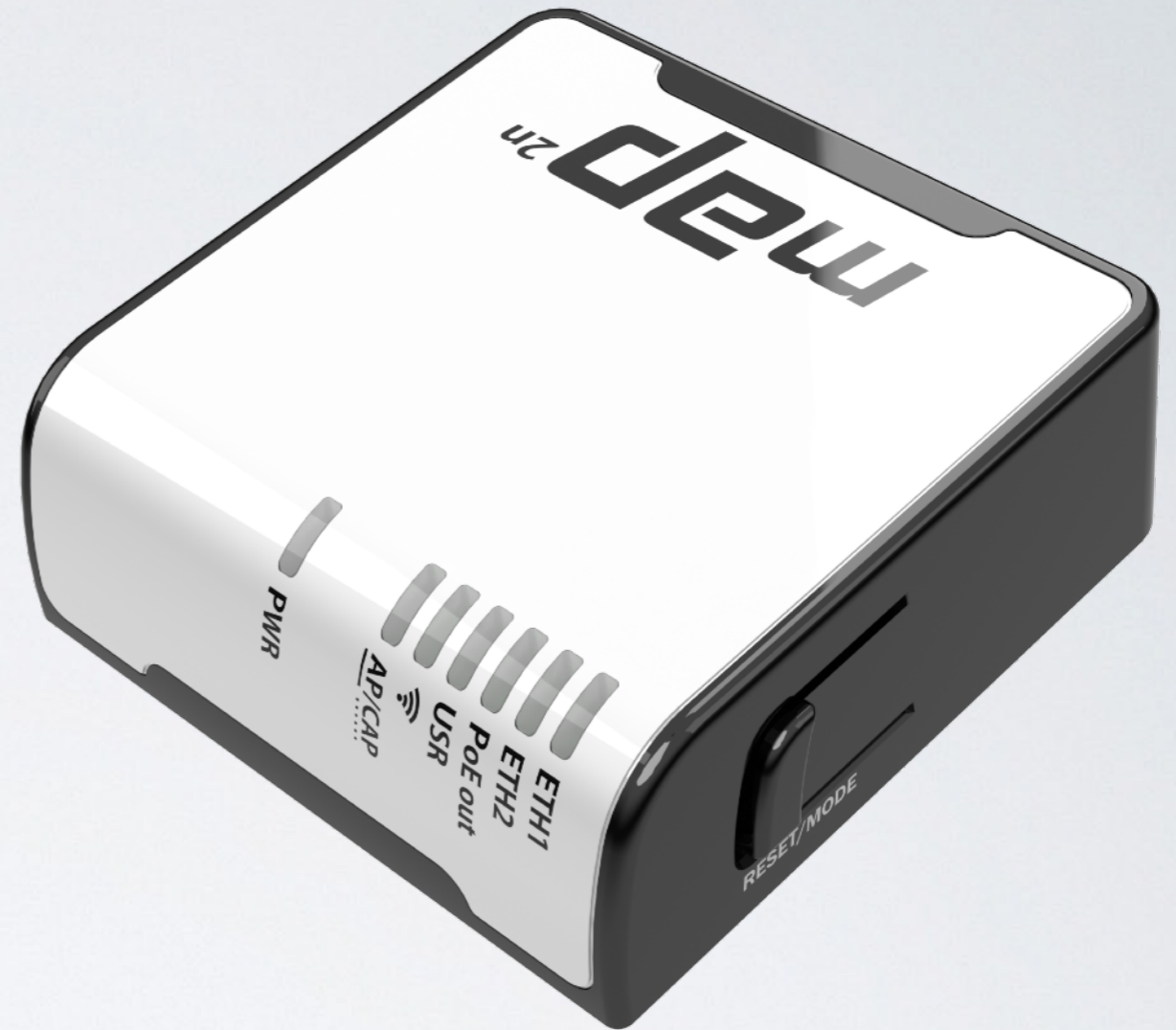
# quickMOUNT pro LHG

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



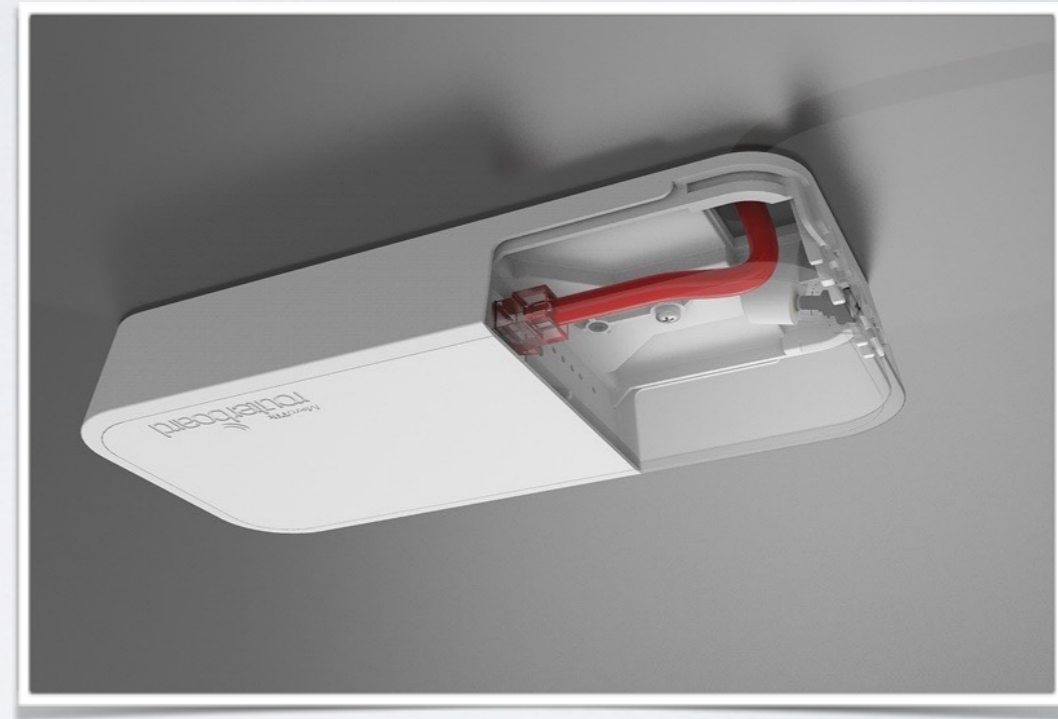


# mAP



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

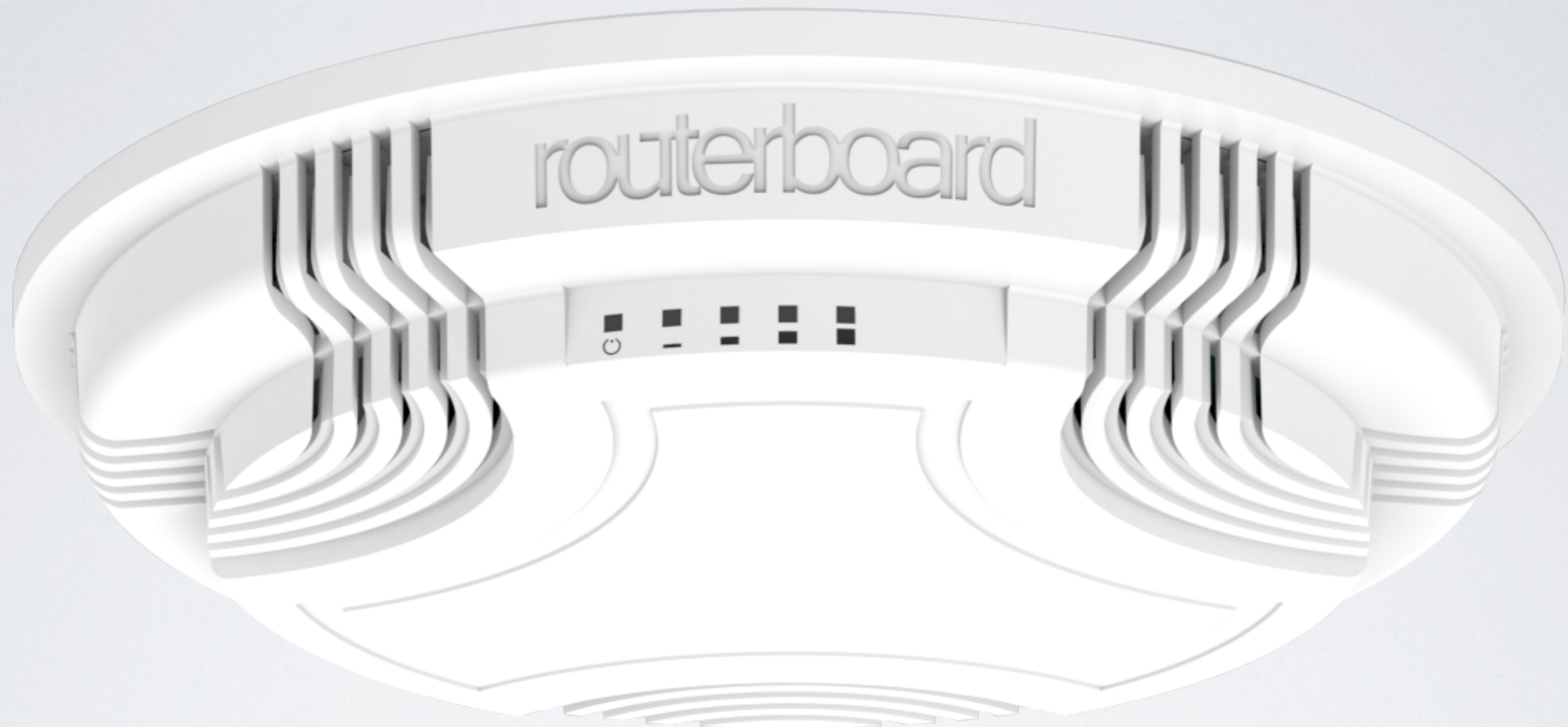
# wAP ac



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



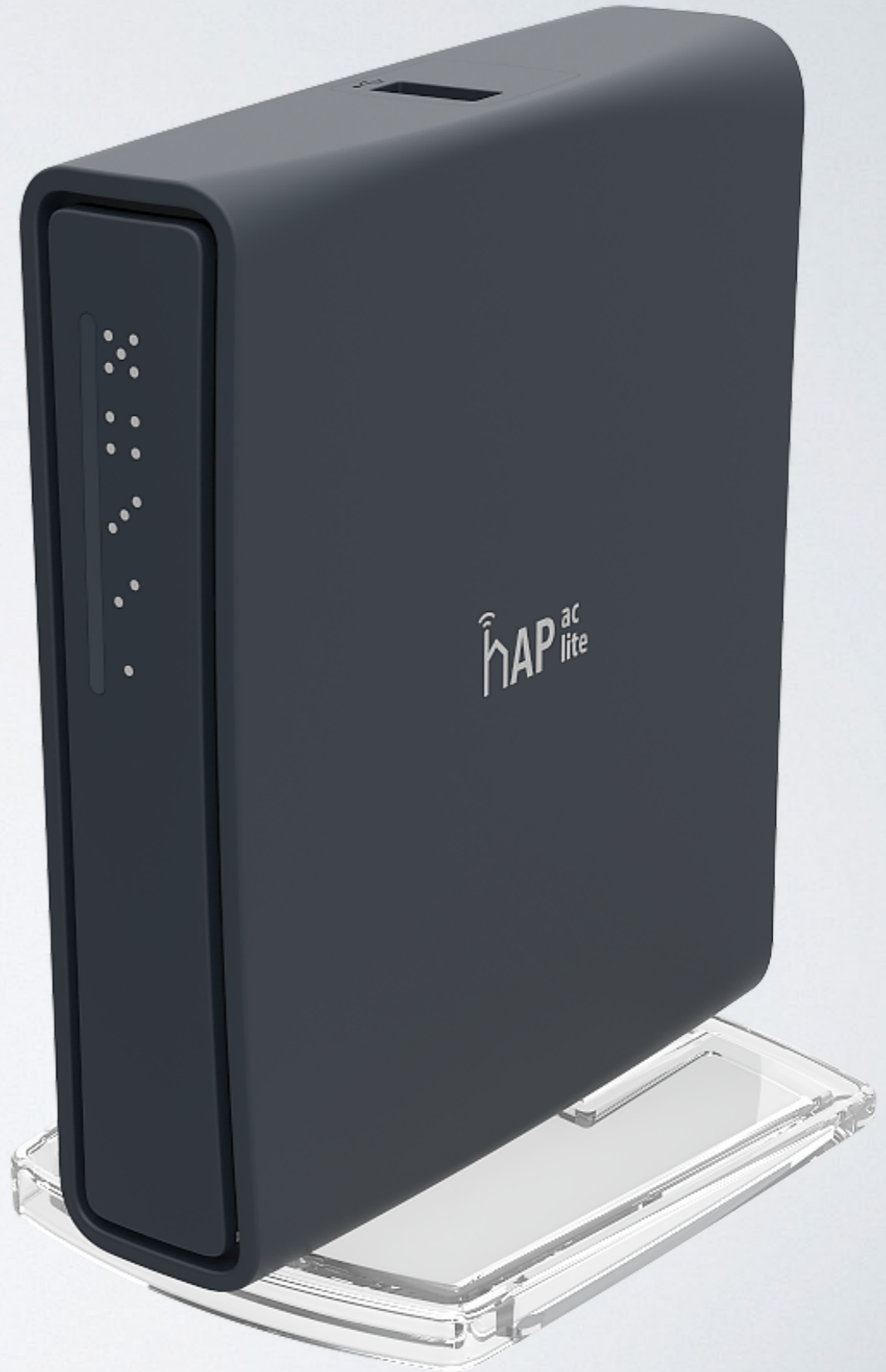
## cAP



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

now

# hAP ac lite





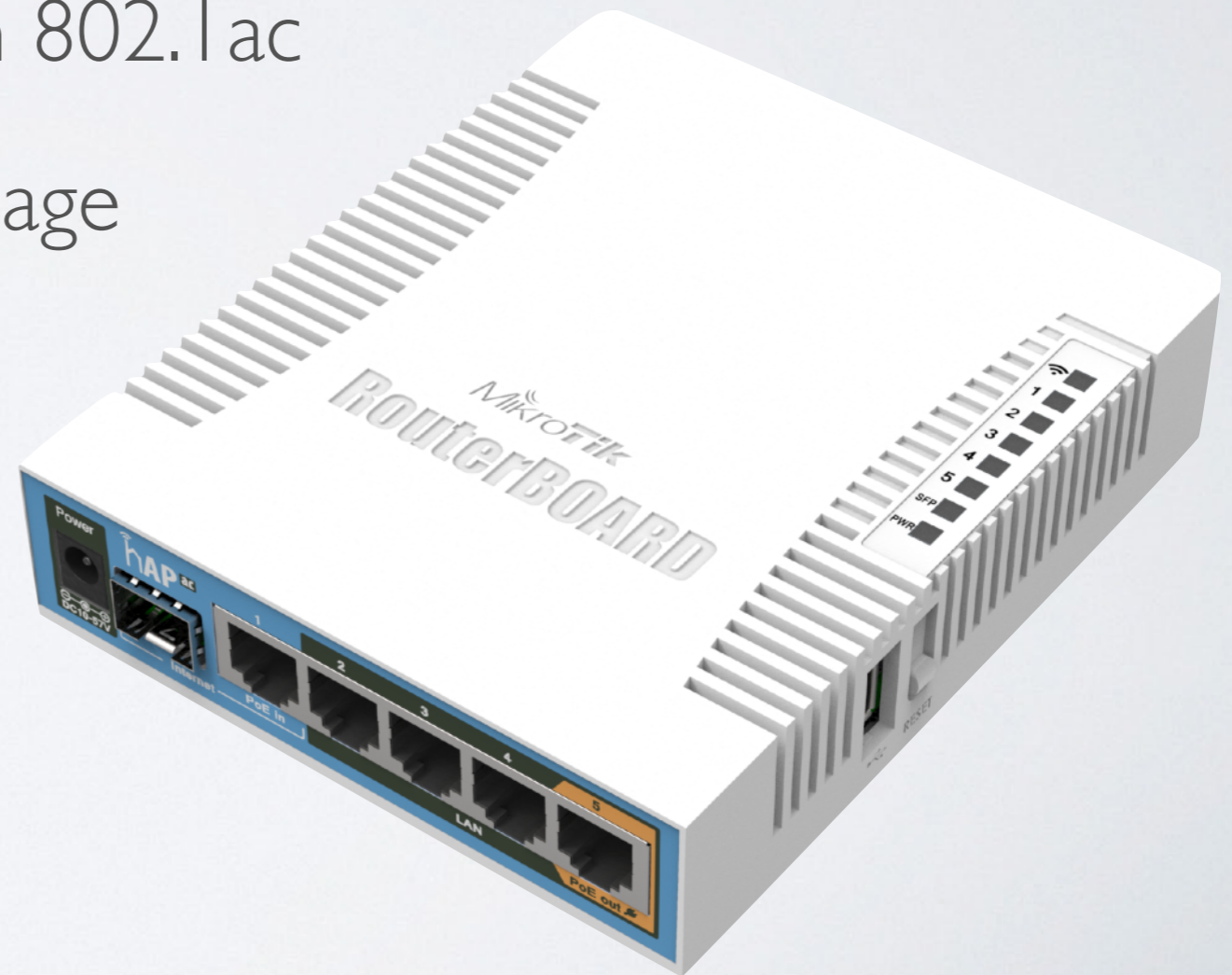
# hAP ac lite

- Dual concurrent home AP
- 2.4GHz high power 2 chain 802.11n
- 5GHz high power 1 chain 802.11ac
- 5x 100Mbps ports
- 650MHz CPU
- USB port for 3G/4G



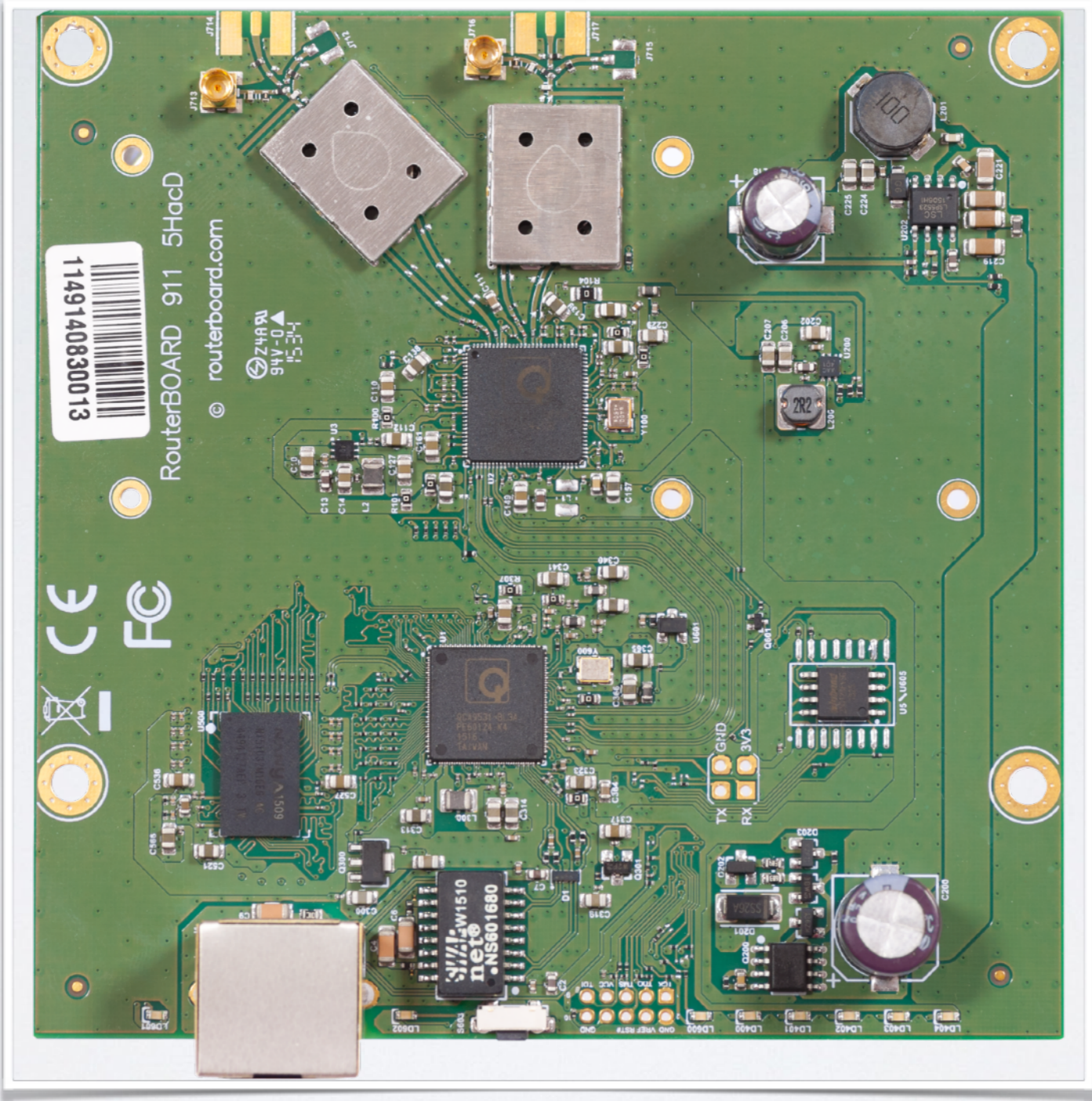
# hAP ac

- 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





# 911 Lite 5ac



ac update for extremely affordable board



# Groove 52 ac



- ac update for the popular Groove model

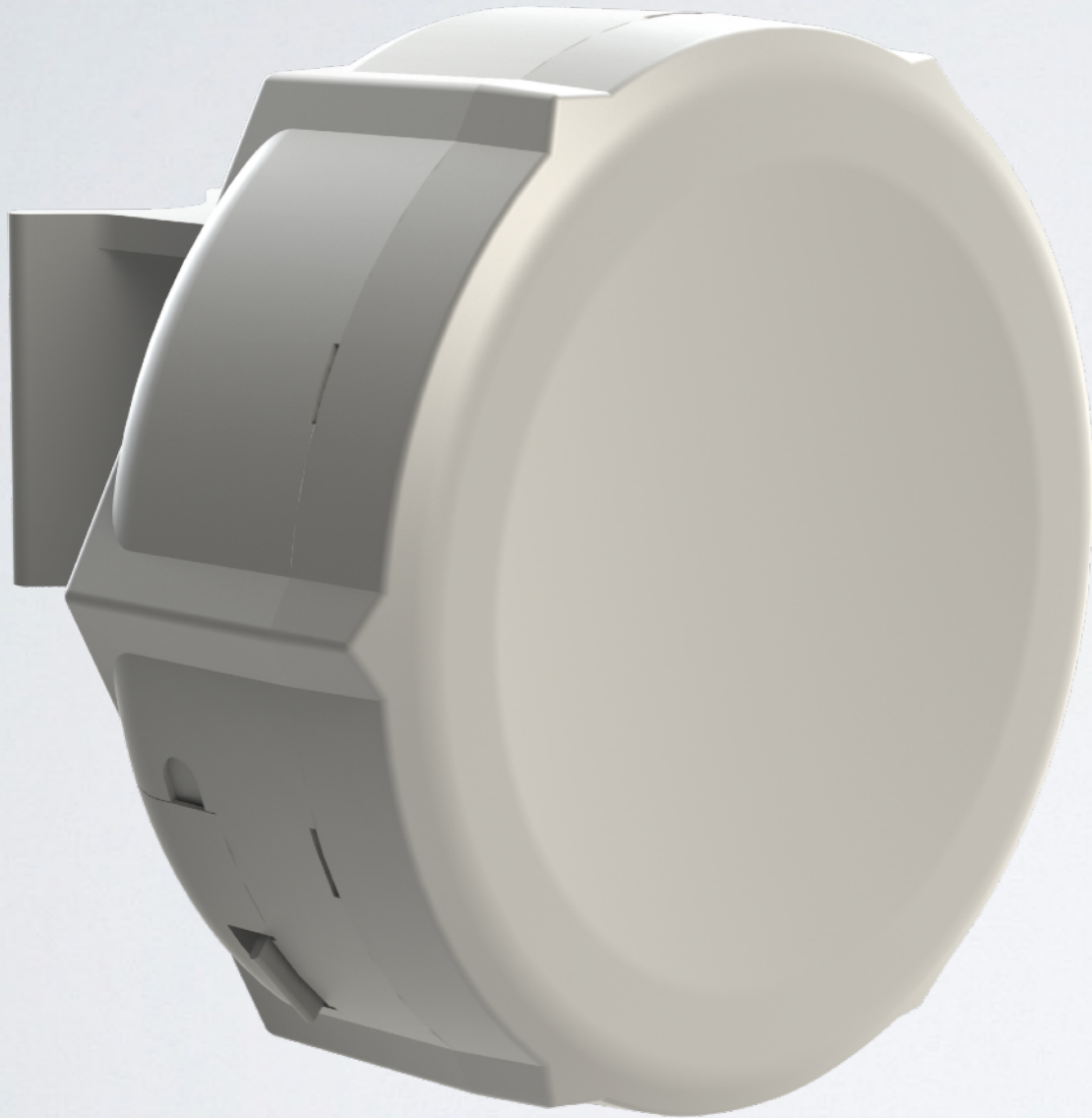


# Metal 52 ac



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

# SXT 6GHz

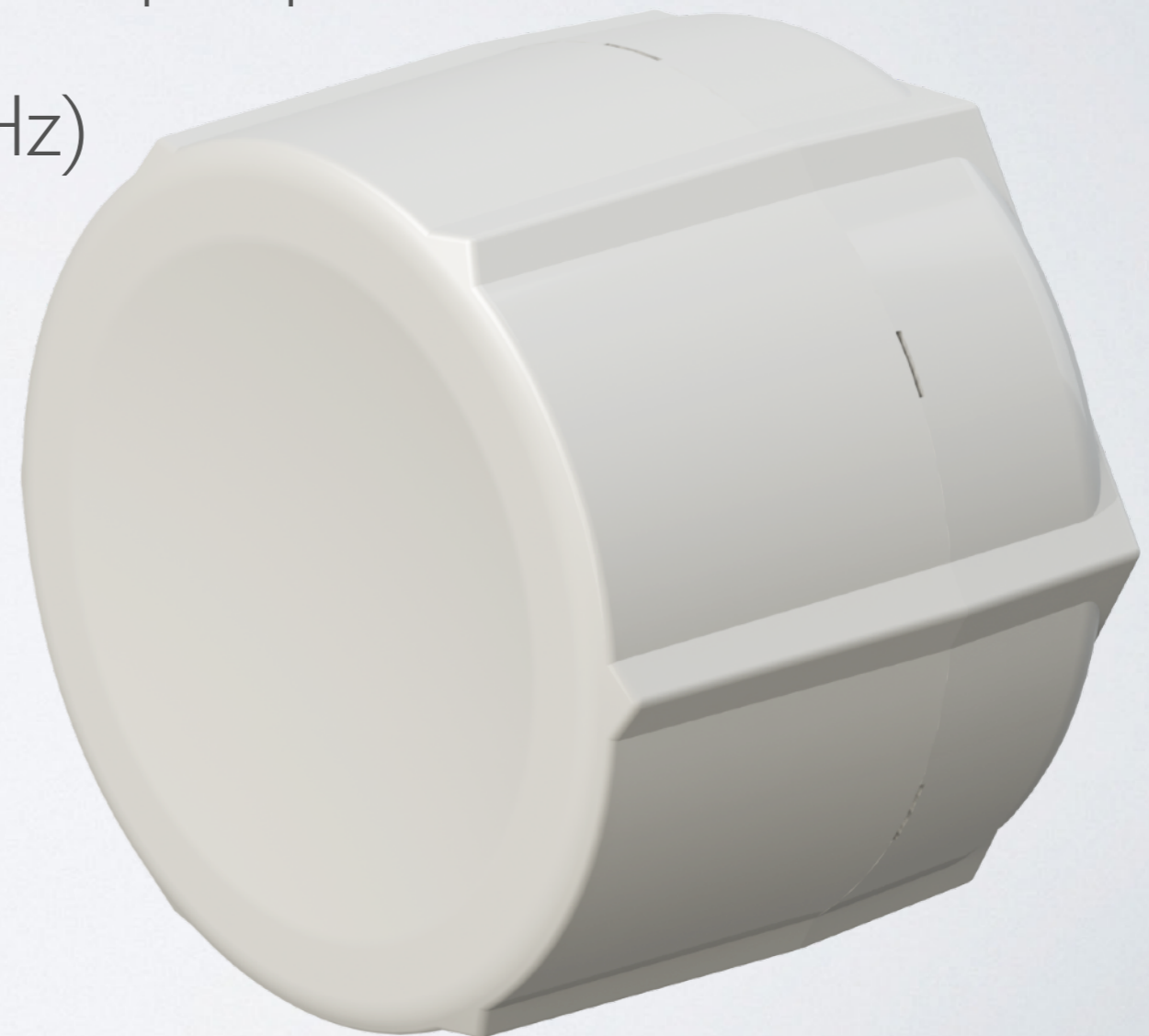


- 5940-6500 MHz range
- 802.11 a/n
- Antenna gain 16dBi
- Antenna beam width 28



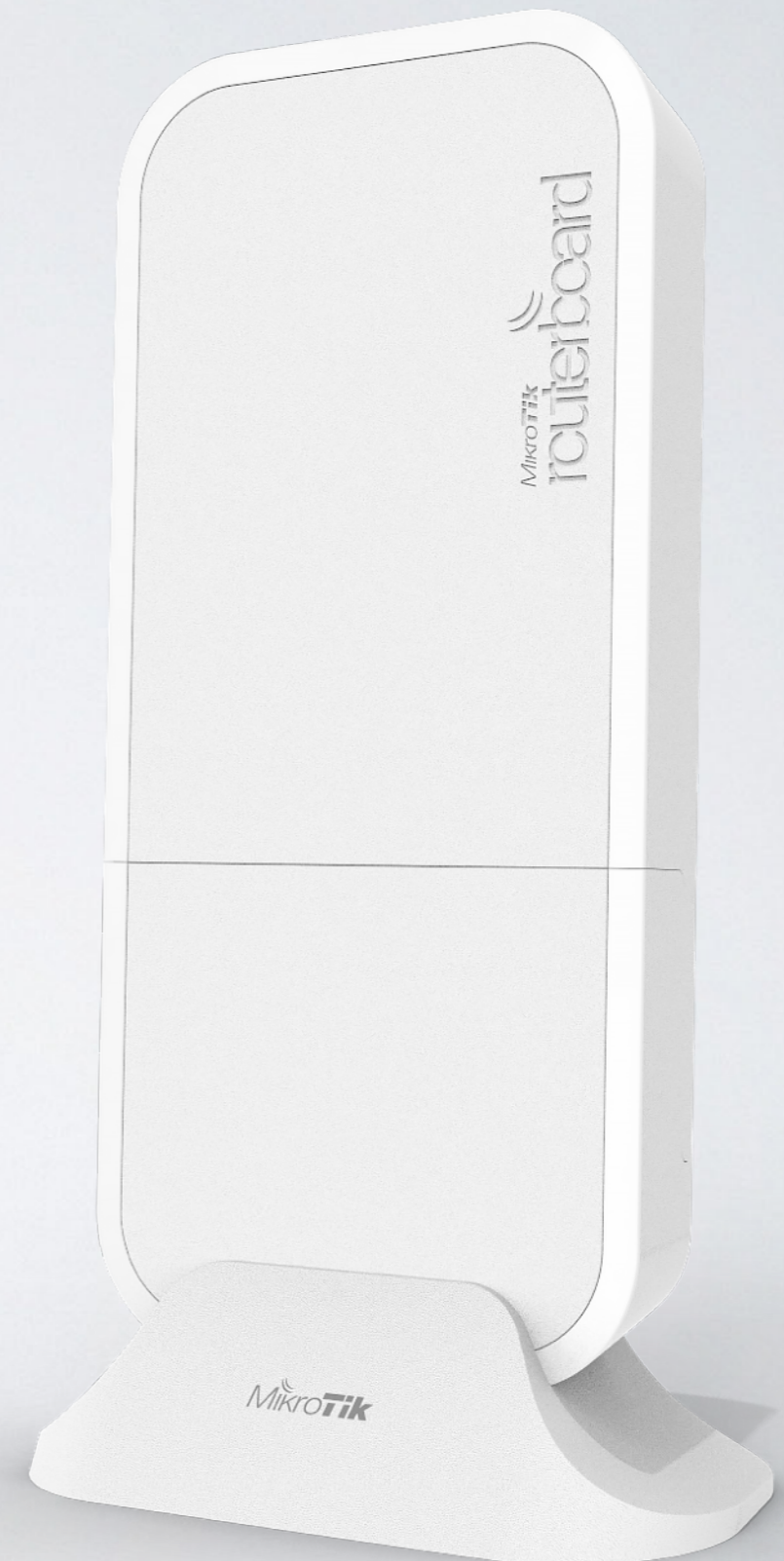
# SXT LTE

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



# wAP LTE kit

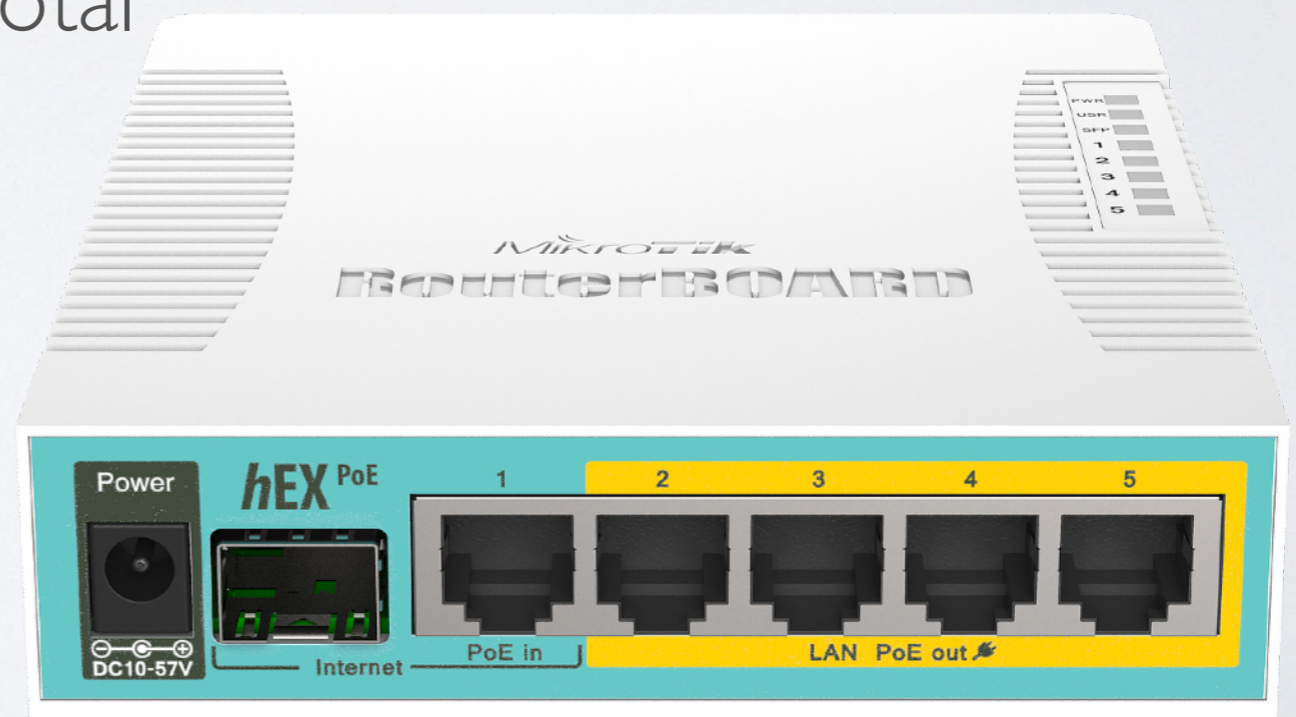
- 2GHz wireless
- LTE antennas
- LTE modem within minipci-e
- weatherproof case
- indoor, outdoor, mobile operation





# hEX PoE

- Small Ethernet device
- Five Gbps ports
- Power over Ethernet out on ports 2-5
- Max 1A per port, 2A total



# OmniTIK 5 ac

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





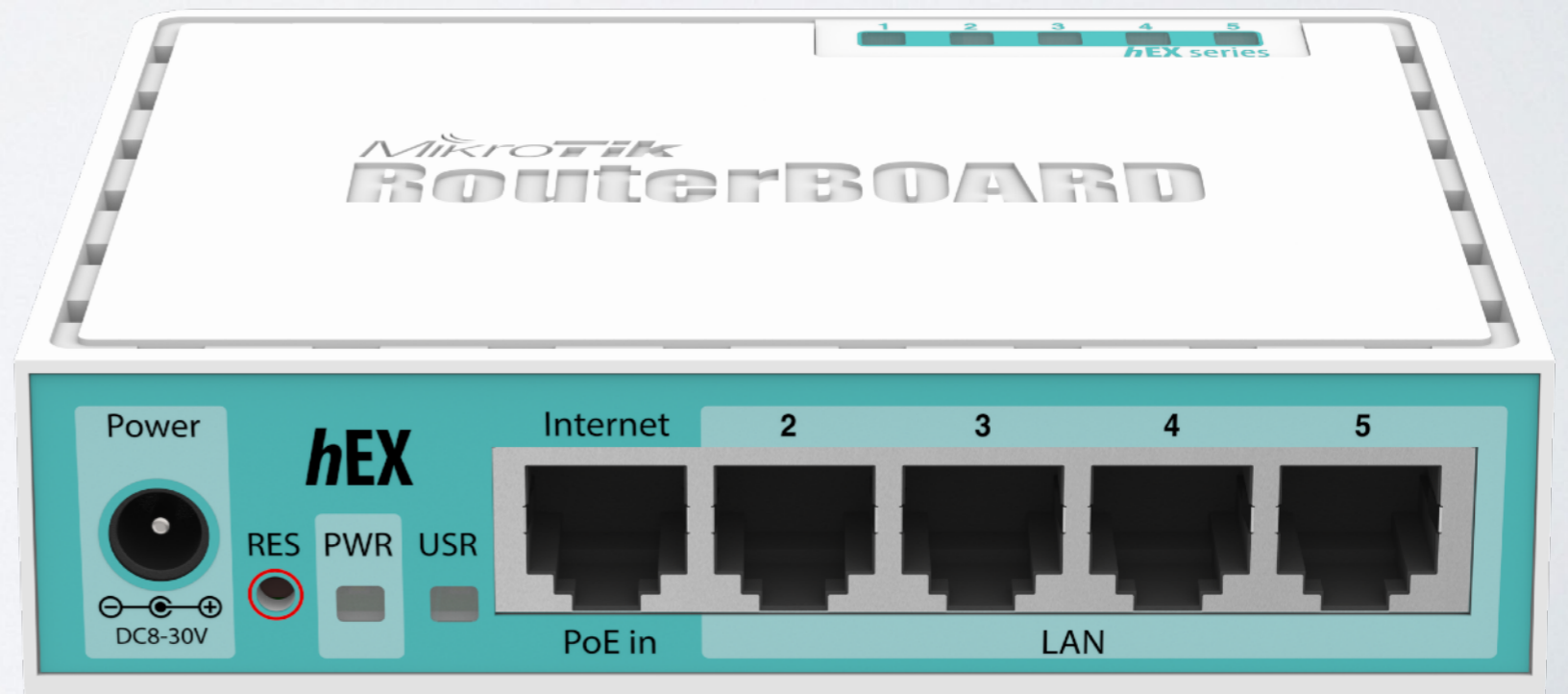
# OmniTIK 5 PoE ac

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



# hEX

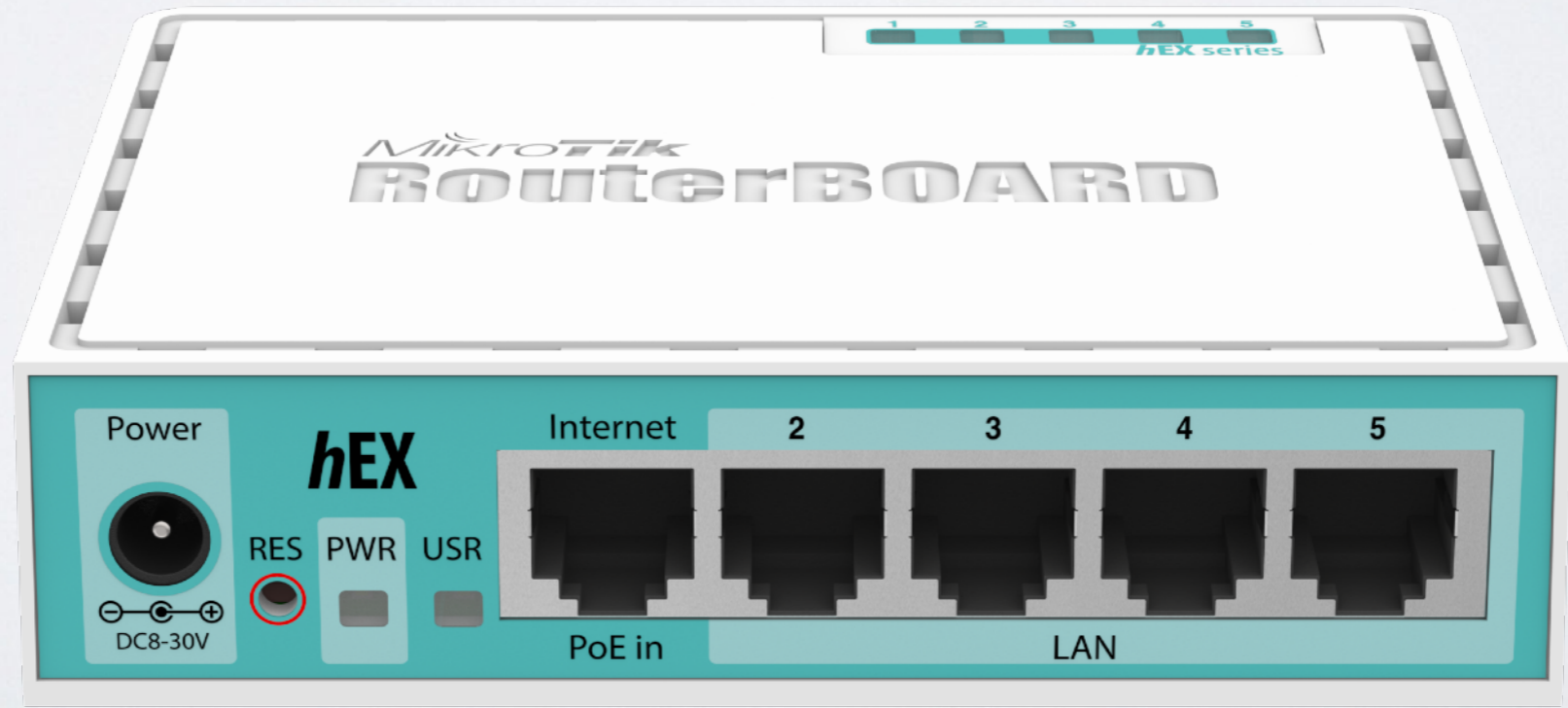
- new hEXr3
- very affordable!
- 880 MHz, 2 cores and 4 threads
- hardware acceleration ~470mbps
- same form factor
- same price





# hEX

previous r2	new r3
396 Mbps, bridging 64 bytes	<b>590 Mbps</b>
986 Mbps, bridging 1518 bytes	<b>1955 Mbps</b>
373 Mbps, routing 64 bytes	<b>520 Mbps</b>
396 Mbps, routing 1518 bytes	<b>1961 Mbps</b>
40 Mbps, AES-128 1400 bytes	<b>472 Mbps</b>



# CCR1009 update

- new CCR1009 available!
- no switch chip!
- 100Mbps support over SFP!
- combo port
- more throughput





now

# CCR1009 update

CCR1009-8G-1S+PC - 6Gbps (old)

**CCR1009-7G-1C-PC - 8Gbps (new)**

CCR1009-8G-1S-1S+PC - 16Gbps (old)

**CCR1009-7G-1C-1S+PC - 18Gbps (new)**



# All Products

- Include free software upgrades for life
- Run the same RouterOS software\*
- For more info see [\*\*routerboard.com\*\*](https://www.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 a specific AWS Region. You can create your own AMIs, use an AMI from 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
P1	1 Gbit	\$45
P10	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

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

# 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----- alnRyhu6h1VqzR4wfrXcyP3MB4BysaE1qMBikaNodTDLHTUK8ppNxddOGCebjU6n1WwL7hsDsfwZcMFA==----- 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

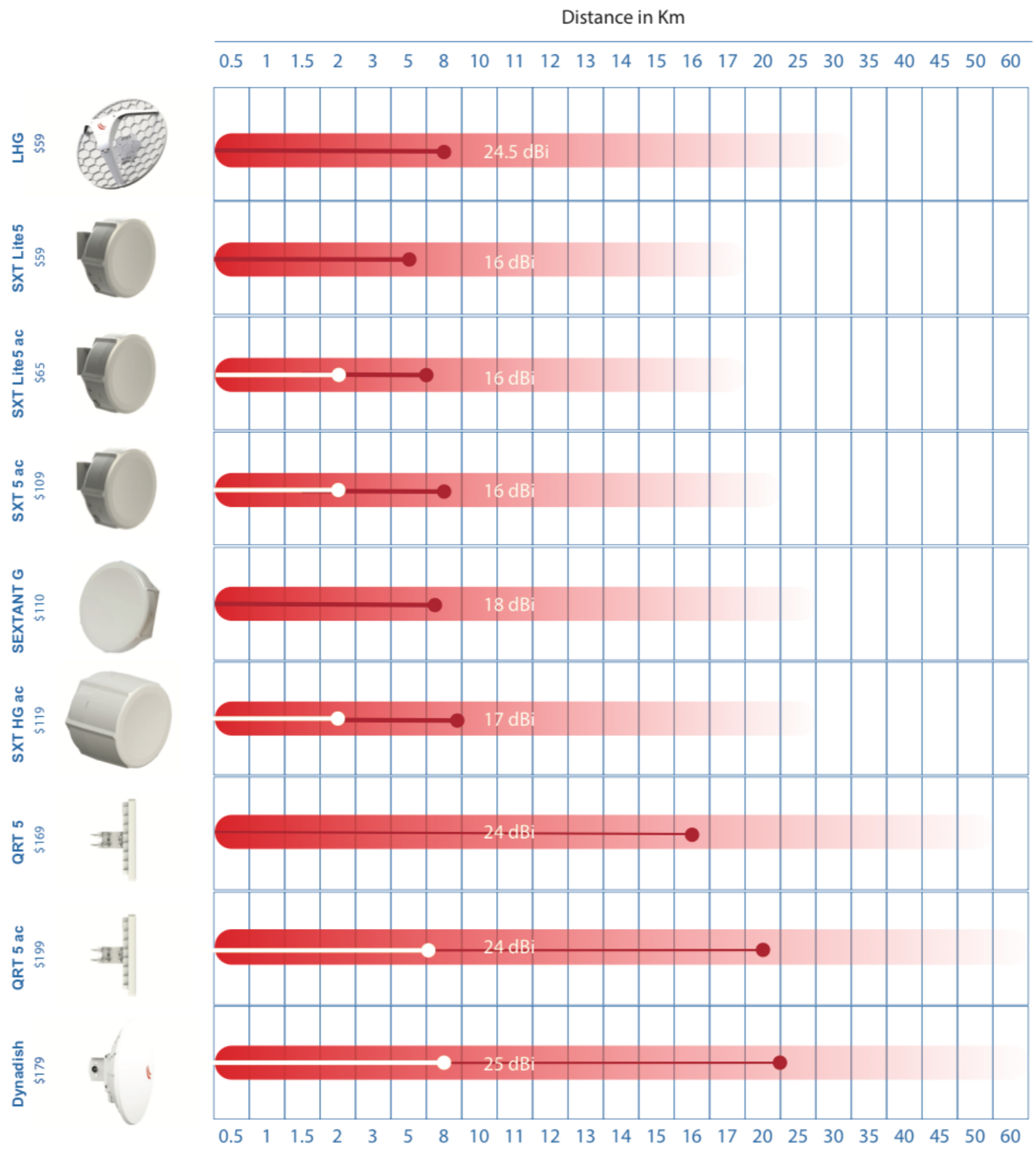
The screenshot shows the Mikrotik WinBox Firewall configuration interface. The 'Address Lists' tab is active, displaying a list of address lists. A dialog box titled 'Firewall Address List <filter\_youtube>' is open, showing the configuration for a new address list named 'filter\_youtube' with the address 'youtube.com'. The status 'enabled' is shown at the bottom of the dialog.

Name	Address	Timeout
filter_you...	youtube.com	
filter_...	195.122.16.49	
filter_...	195.122.16.44	
filter_...	195.122.16.35	
filter_...	195.122.16.54	
filter_...	195.122.16.25	
filter_...	195.122.16.20	
filter_...	195.122.16.45	
filter_...	195.122.16.30	
filter_...	195.122.16.55	

Firewall Address List <filter\_youtube>

Name: filter\_youtube  
Address: youtube.com  
Timeout:   
enabled





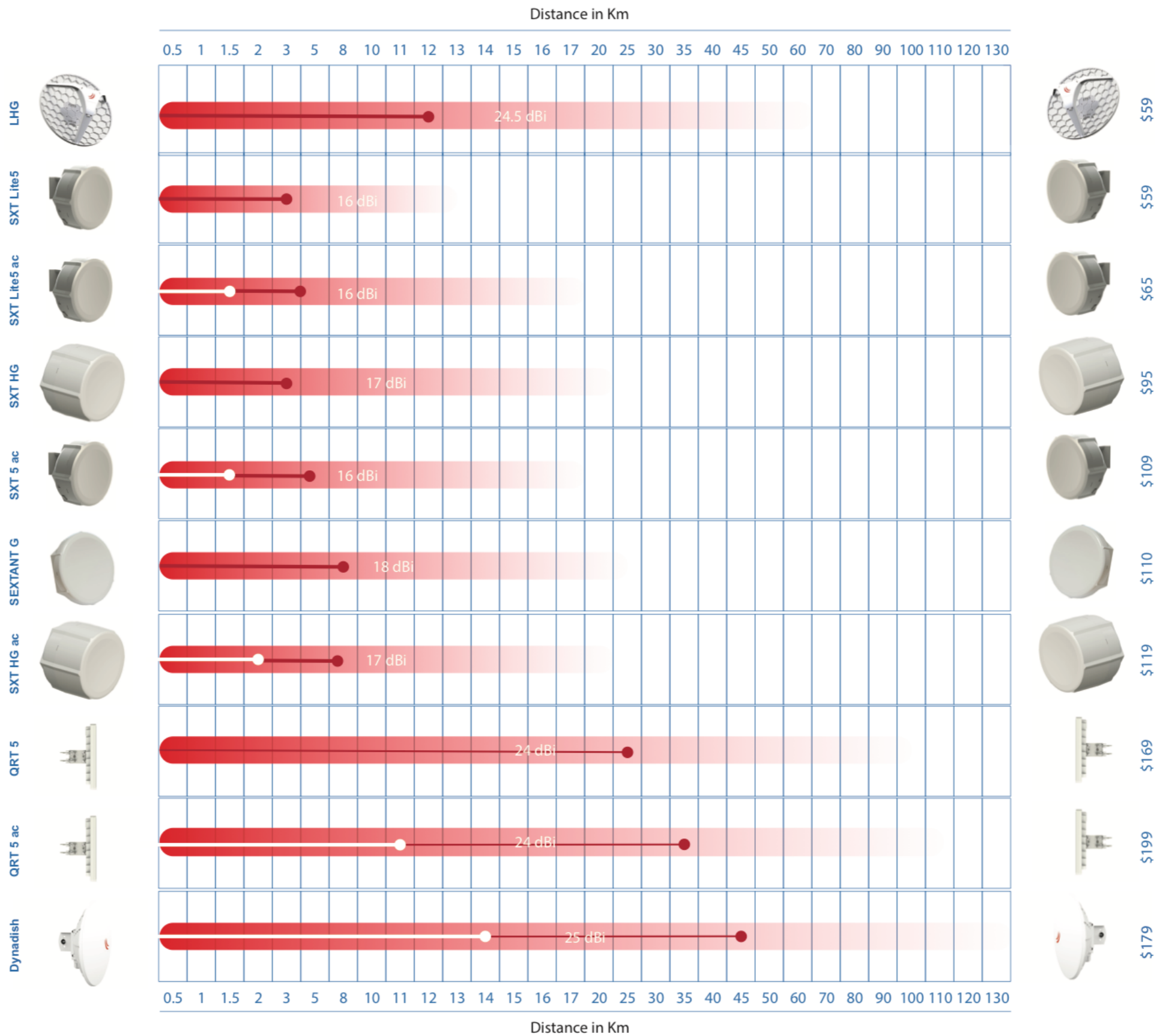
Distance in Km

○ Distance at max supported 802.11ac data rate (eg. 866Mbit)

● Distance at max supported 802.11n data rate (eg. 300Mbit)

■ Max range at -70 signal

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



Distance at max supported 802.11ac data rate (eg. 866Mbit)
  Distance at max supported 802.11n data rate (eg. 300Mbit)
  Max range at -70 signal

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 added to your account



Enjoy the MUM!

The logo for MikroTik, featuring the word "Mikro" in a thin, italicized sans-serif font, followed by "Tik" in a bold, italicized sans-serif font. Above the "i" in "Mikro" are three curved lines. The entire logo is reflected on a glossy surface below it.

*MikroTik*