

# Towards delivering a structural superior Wi-Fi experience

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New Internet Box - Wi-Fi 6 & EasyMesh capable

21/06/2022



*IVM Tribe is not simply delivering products to be sold, we are creating feelings & providing superior experience*

proximus

# Agenda

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*What's the value in the eyes of the customers  
and how will we approach them?*

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## Q&A

*The floor is yours*

**After Demo  
Networking**

# Agenda

5'

**The Status**

*Where are we today?*

# An innovative premiere in Belgium

The pandemic has brought a new paradigm with Wi-Fi becoming a primary need for which speed, stability and performance must be achieved in all circumstances. The era of bad Wi-Fi must soon be over.

After a successful TFT & Pilot, we launched the new Box & Boosters since the 2<sup>nd</sup> of May for new customers with first impressive & promising results

>>97,5%

ZTC

>7000

Customers

>>90%

CSAT

We did not only launch a new modem & new boosters, but we integrated Wi-Fi 6 & EasyMesh technologies by adopting a fully embedded circularity by design principle.

We designed a sleek, discreet and elegant vertical product to optimize Wi-Fi distribution and ensure better coverage



# Wi-Fi 6 Gateway & Mesh Extender integrated in the Internet Box!

Internet Box\*

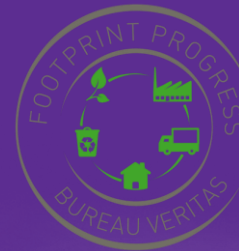
**100%**  
Recycled  
plastic  
casing

**-24%**  
Energy  
consumption

**-30%**  
Carbon  
footprint



\*compared to bbox3v+



**WiFi 6**  
CERTIFIED

Wi-Fi booster\*\*

**100%**  
Recycled  
plastic  
casing

**-10%**  
Energy  
consumption

**-9%**  
Carbon  
footprint



\*\*compared to previous  
generation Wi-Fi booster

# Boost your Wi-Fi to reach more corners of your home



## DSL/FTTH Dual Band 2x2 + 4x4 Wi-Fi 6 Internet box



### Main SoC

- BCM63178



### WAN Access

- 1x Gb Eth RJ45
- xDSL up to **VDSL 35B**



### LAN Access

- 4x 1Gb Eth RJ45



### Memory

- DDR3 1GB
- Flash NAND 512MB



### Telephony

- 2 FXS



### Wi-Fi Dual Band 802.11ax

- 2.4GHz 2x2 11ax (BCM63178)
- Bandwidth: 20/40MHz
- 5GHz 4x4 11ax (BCM43684)
- Bandwidth: 20/40/80/160MHz



### Multi-SSID as well as seamless installation using WPS feature



### Recycled plastic housing



## Dual Band 2x2 + 4x4 Wi-Fi 6 Booster



- **2.4GHz** 2x2 included in main SoC BCM 6752
- **5GHz** 4x4 with BCM43684
- 2 x 1Gb Eth RJ45



### Recycled plastic housing

# Comparative b-box 3v+ / Internet Box

		b-box 3v+	Internet Box
Technical specifications	Main SoC	BCM63168 (2*400 MHz MIPS)	BCM63178 (3*1,5 GHz ARM A7)
	CPU Performance	1100 DMIPS	8500 DMIPS equivalent *
	DSL	BCM6302	BCM6303
	RAM	256 MB	1 GB
	Flash	128 MB	512 MB
WAN	WAN – xDSL	ADSL1/2/2+ supported / VDSL2 up to 17a	VDSL2 up to 35b
	WAN – Ethernet	1 Gb/s	1 Gb/s
Wi-Fi	Platform	AC2000	AX5400
	Wi-Fi 2,4GHz	Wi-Fi 4 2*2 – integrated	Wi-Fi 6 2*2 – integrated
	Wi-Fi 5 GHz	Wi-Fi 5 4*4 – QTA QV 840	Wi-Fi 6 4*4 – BCM 43684

\* DMIPS equivalence provided for sake of comparison only

# Carbon footprint of Internet Box



- 30% on overall carbon footprint compared to b-box 3v+
- -41% on manufacturing
- -24,5% on energy consumption

Casing made of **fully recycled plastic**

Significant improvements compared to previous generation, validated by third parties

- **Carbon footprint reduction** certified by *bureau Veritas footprint progress* through Life cycle analysis
- **Ecocost of the product** checked by KPMG / Circular IQ

Further improvements to come, with an alternative delivery of products by train ; terrestrial transport impact **divided by 5**





# Carbon footprint of Wi-Fi Booster v2



**-9%** on overall carbon footprint compared to previous Wi-Fi Booster v2

- **Similar impact** on manufacturing
- **-10%** on energy consumption

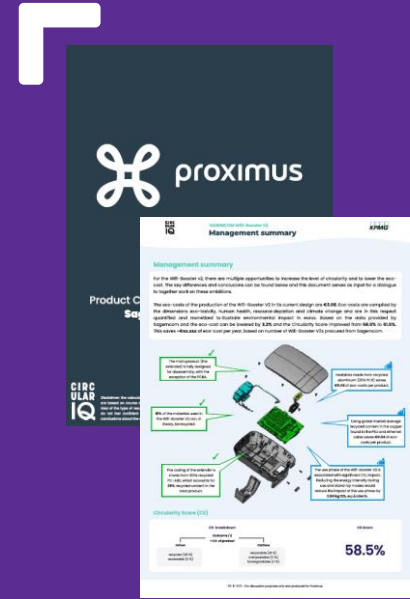


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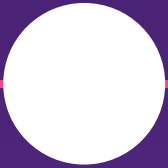
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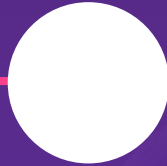
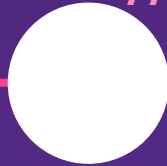
# Agenda



15'

## The Communication

*What's the value in the eyes of the customers  
and how will we approach them?*



# The product capabilities in the eyes of the customer

## New Internet box customer value



- **Faster speed:** better and smarter speeds overall thanks to optimizations, processing power & better sensibility in the chipset.



- **Better coverage:** smarter & improved coverage thanks to (multi)-boosters with Mesh Technology



- **More stable users:** multiple devices connected at the same time without lag or interruptions favouring on-line gaming, streaming & surfing together.



- **Greener:** thanks to sleep mode when not active on Wi-Fi (for compatible Wi-Fi 6 devices)



- **More Secure:** against hacking thanks to WPA3 encryption enabling a better password protection [disabled at launch]



# Wi-Fi 6: the latest gen and fastest Wi-Fi on the market

What will make the difference for our customers and make us unique in Belgium?

- **Wi-Fi 6 is about 40% more performant than Wi-Fi 5.**
- **Wi-Fi 6 includes Multidevice management:** *Combined with our smart Wi-Fi solution, it offers a real-time selection of the best frequency band and the best access point for each of the connected devices. The connection time is also improved as there is less waiting time when many devices access the Wi-Fi 6 router simultaneously.*
- **Stability:** *Wi-Fi 6 has a better performance than Wi-Fi 5 if the signal strength decreases.*
- **Less battery consumption:** *the battery of Wi-Fi 6 products lasts longer, because of sleep mode availability.*
- **Proximus has for the first introduced Wi-Fi 6 at a large scale with its new Box in Belgium.** *Wi-Fi 6 is already a commodity on retail market for routers and repeaters, > 30% Proximus smartphones park is already Wi-Fi 6 compatible*



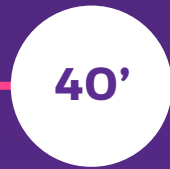
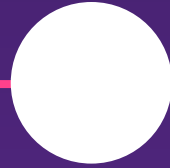
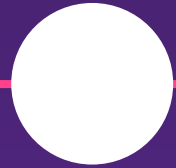
<https://www.wi-fi.org/content/search-page?keys=WFA119260>

# Wi-Fi Mesh: the smartest and most extended coverage Wi-Fi in 'home/office'

- **Extend Wi-Fi coverage (in large environment) based on “EasyMesh”** which allow all boosters and the modem to talk between each other in a 'meshed' topology.
- **EasyMesh is a standard from Wi-Fi alliance** *Easymesh is already becoming a commodity on the retail market for routers and repeaters.*
- **In Belgium, some operators are claiming Mesh Wi-Fi.** But: need to place an extra repeater near the modem and de-activate Wi-Fi on the modem as it not mesh compatible. Therefore, configuration is more complex as customers need minimum two repeaters..

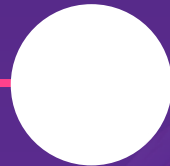
*EasyMesh certification in progress*

# Agenda



## The Product

*Demo 1 – What will be the differentiated performance in the eyes of the customers?*



# How to compare performance vs. previous generation?

Live demo tests



# Wi-Fi speed background

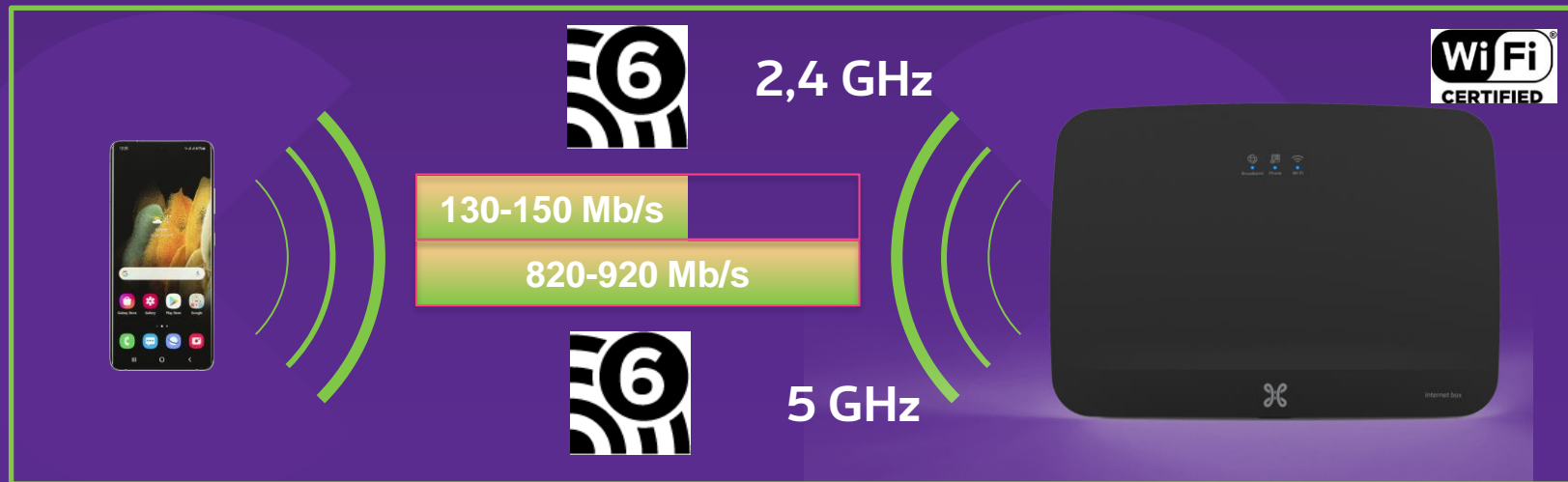
		b-box 3v+	Internet Box
LAN/WAN	LAN	4*1 Gb/s	4*1 Gb/s
	WAN	1 Gb/s	1 Gb/s
Wi-Fi	Platform	<b>AC2000</b>	<b>AX5400</b>
	Wi-Fi 2,4GHz	Wi-Fi 4 2*2 – integrated	Wi-Fi 6 2*2 – integrated
	Wi-Fi 5 GHz	Wi-Fi 5 4*4 – QTA QV 840	Wi-Fi 6 4*4 – BCM 43684
Technical interface speed	Main SOC to 5 GHz chip link	1 Gb/s (RGMII)	~4 Gb/s (PCI Express Gen2 x1)



# Setup 1 : real speed expectation

DUT	2,4 GHz				5 GHz			
	Max capabilities	Max theoretical	Real expected speed		Max capabilities	Max theoretical	Real expected speed	
			b-box3	Internet Box			b-box3	Internet Box
<b>iPhone 7/8/X/Xs</b>	WiFi 4 40 MHz	300 Mb/s (144 Mb/s)	40-60 Mb/s	<b>70-90 Mb/s</b>	WiFi 5 80MHz	866 Mb/s	350-450 Mb/s	<b>400-500 Mb/s</b>
<b>iPhone 11/12/13</b>	WiFi 6 40 MHz	574 Mb/s (287 Mb/s)	40-60 Mb/s	<b>130-150 Mb/s</b>	WiFi 6 80MHz	1200 Mb/s	450-550 Mb/s	<b>650-750 Mb/s</b>
<b>Samsung S21/S22</b>	WiFi 6 40 MHz	574 Mb/s (287 Mb/s)	40-60 Mb/s	<b>130-150 Mb/s</b>	WiFi 6 80MHz	1200 Mb/s	450-550 Mb/s	<b>650-750 Mb/s</b>
<b>Samsung S21 Ultra / S22+ / S22 Ultra</b>	WiFi 6 40 MHz	574 Mb/s (287 Mb/s)	40-60 Mb/s	<b>130-150 Mb/s</b>	WiFi 6 160MHz	2400 Mb/s	450-550 Mb/s	<b>820-920 Mb/s</b>

# Demo 1 : speed results



# Demo 2 : Mesh and coverage extension

Goal is to demonstrate the coverage extension from Demo Room (1) to Boardroom (3) via Mesh





“

Excellence is never an accident; it is the result of high intention, sincere effort, intelligent direction, skillful execution and the vision to see obstacles as opportunities

”

# Q&A

The floor is yours!

