

NOKIA

WiFi best practices

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Get to Fast Faster 2025

A close-up photograph of a butterfly with orange and black wings perched on a bright yellow sunflower. The background is a soft-focus field of many more sunflowers under a bright sky. The overall mood is natural and serene.

Preventing WiFi Woes

Physics

A little RF engineering

WiFi Bands

2.4ghz band – The coverage band

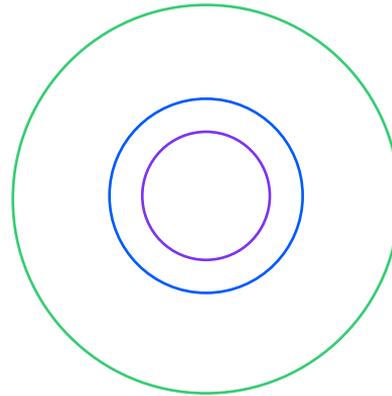
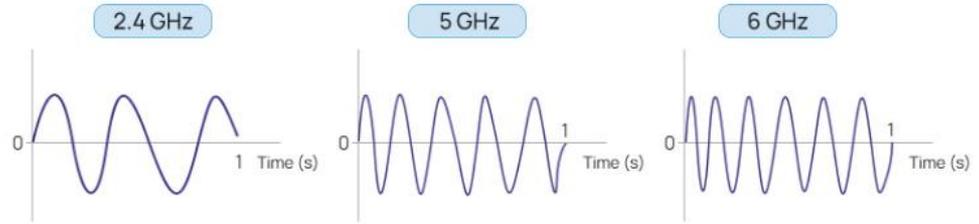
- Best reach
- Best penetration
- Most crowded & lowest speeds

5ghz – The happy-medium band

- Good reach
- Good penetration
- Good speeds (ex 80 & 160mhz)

6ghz – The blazing fast band

- Okay reach
- Okay penetration
- Best speeds (ex 160 & 320mhz)



Band / Wavelength

2.4ghz ~12.5cm

5ghz ~6cm

6ghz ~4.5cm

Attenuators and obstacles

Everything impacts RF propagation

Attenuators (loss, 2.4ghz)

Drywall ~3dB

Concrete ~12dB

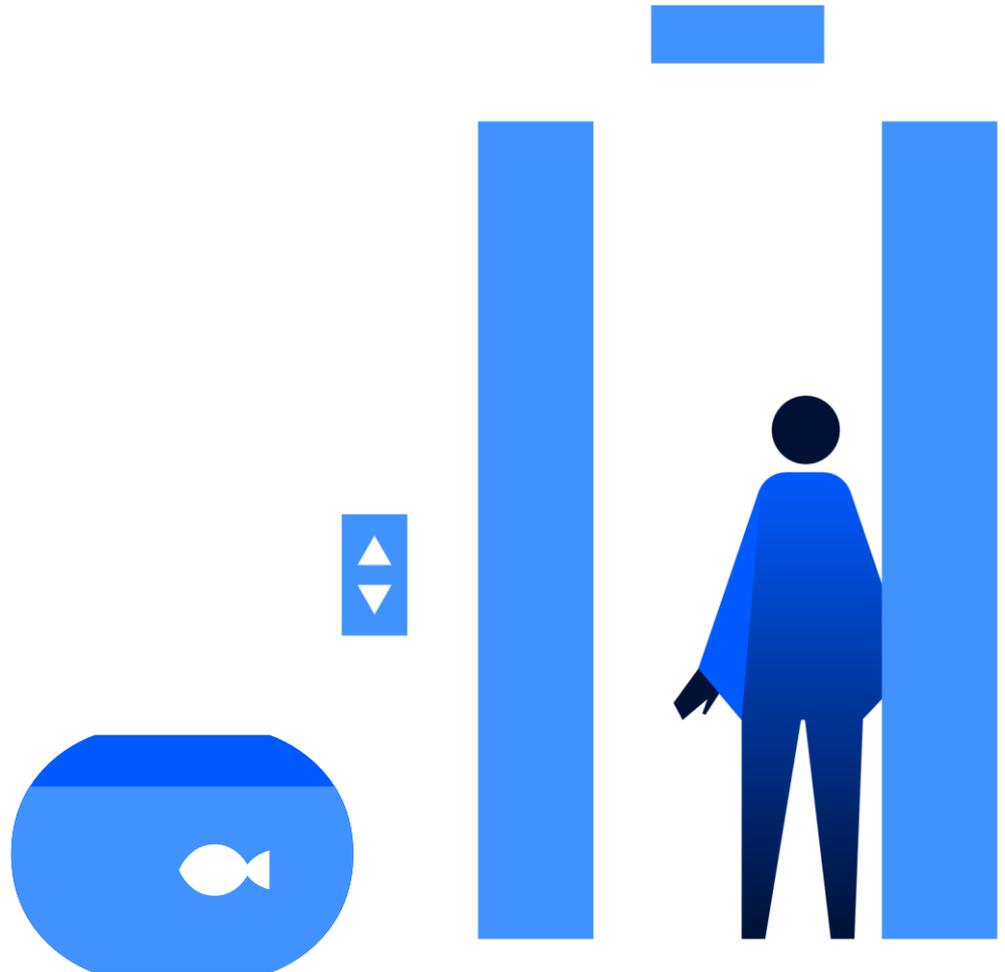
Wood ~6dB

Tile (ex marble) ~6dB

Flooring varies on type ~3-6dB

TVs ~5dB+

Human ~2dB



What RSSI value should we shoot for?

And why

RSSI - Received Signal Strength Indicator

Closer to 0 the better, measured in dBm

Total signal received

Value varies product to product

RSSI value guidance for good signal:

>-70dBm for 2.4ghz clients

>-68dBm to -75dbm for 5ghz clients

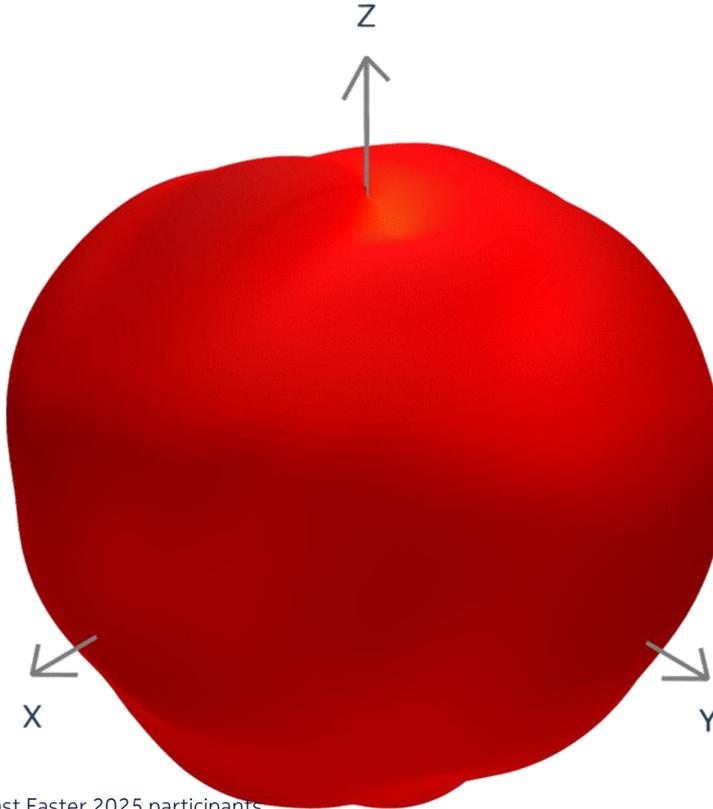
>-65dBm for 6ghz clients

“Bars” varies on OS and devices, common examples

OS	0 bars	1 bar	2 Bars	3 Bars	4 Bars
Apple Family	<-85/searching	-75 to -85	-67 to -75	-50 to -67	N/A
Android	<-90/searching	-85 to -90	-75 to -85	-65 to -75	-50 to -65
Windows	<-80/searching	-80 to -71	-70 to -61	-60 to -51	> -50

WiFi radiation patterns

Not to be confused with a Crimson Crisp apple





How does this all apply
to actual deployments?



The "Ranch"



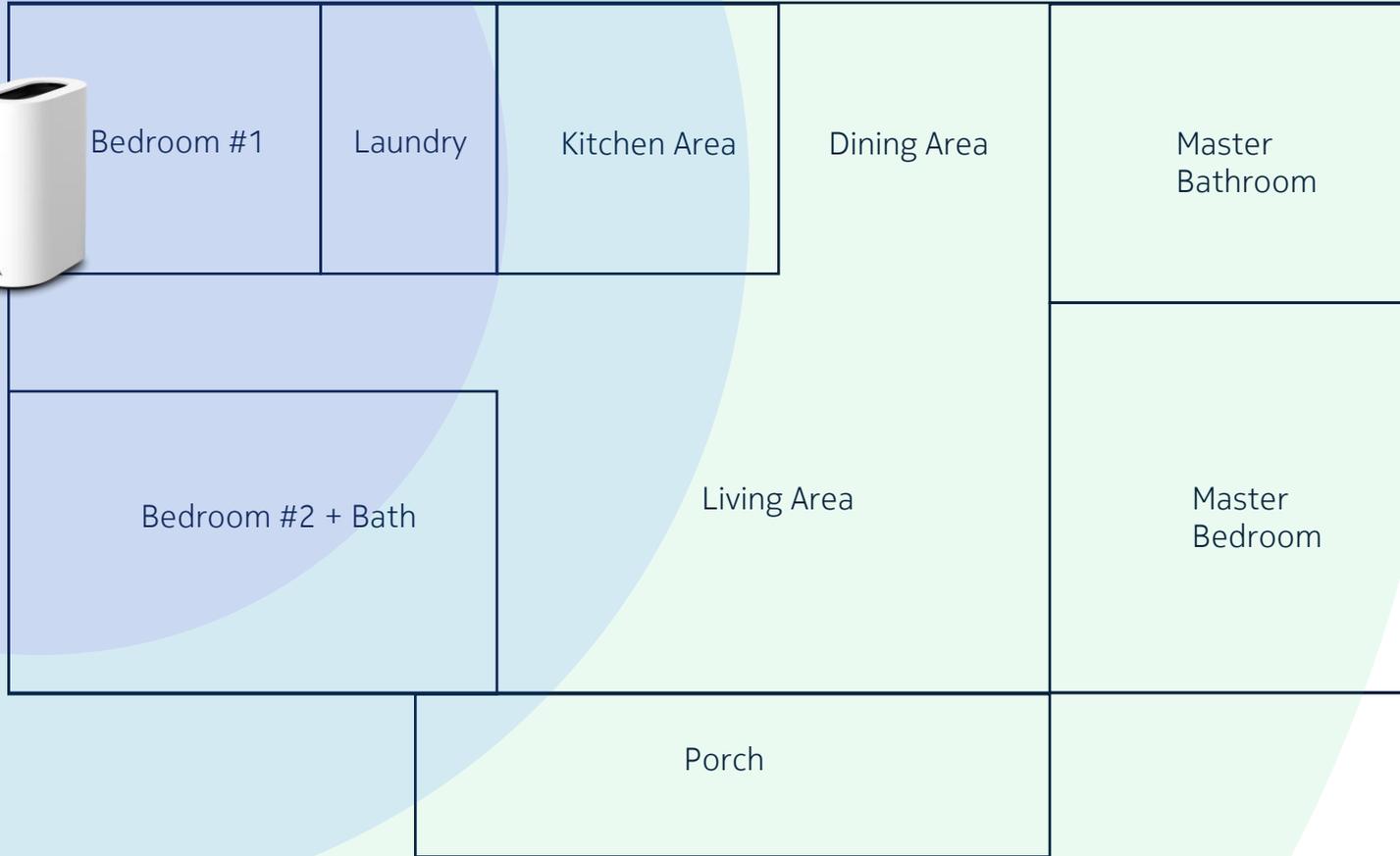
Band / Wavelength

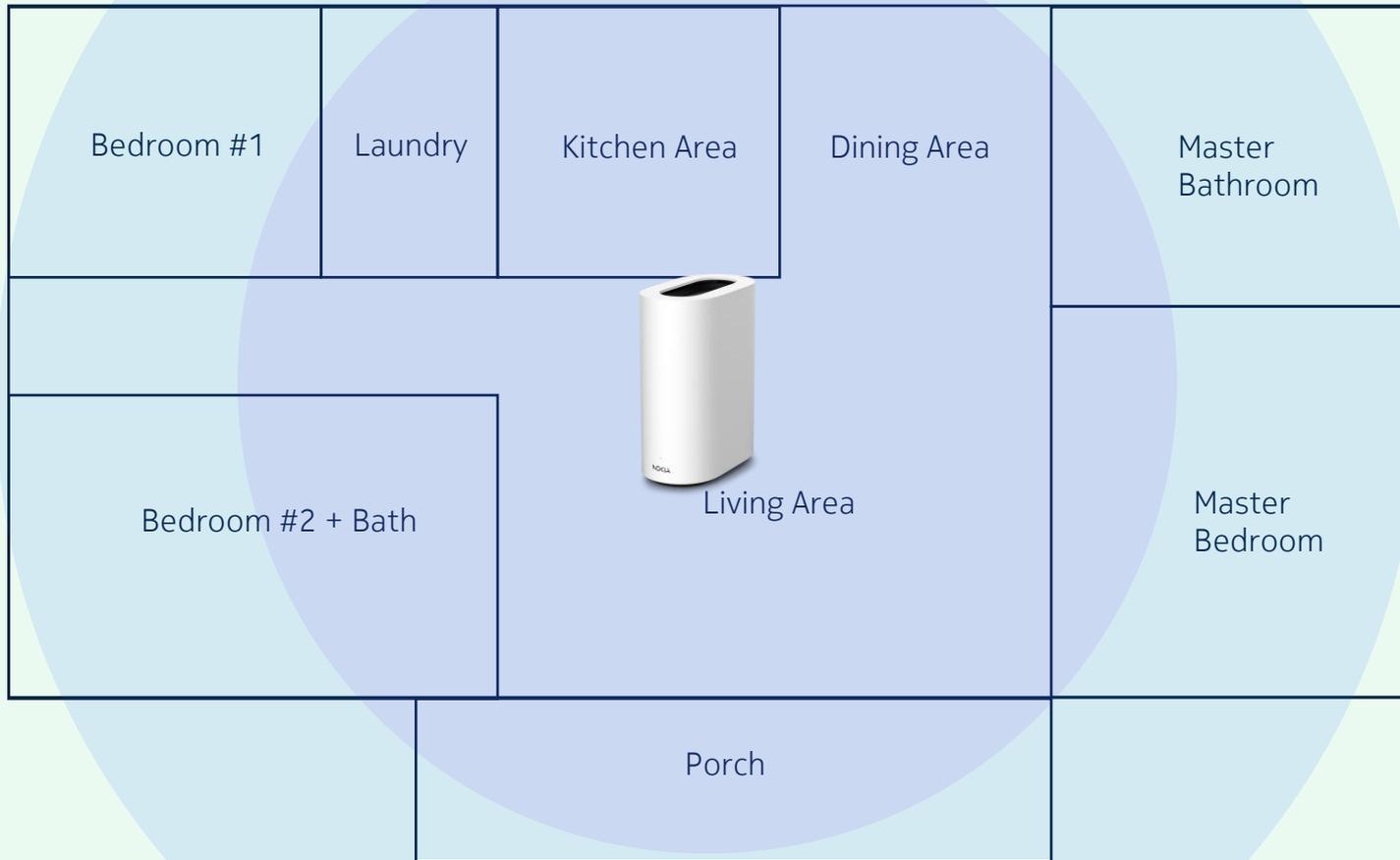
2.4ghz

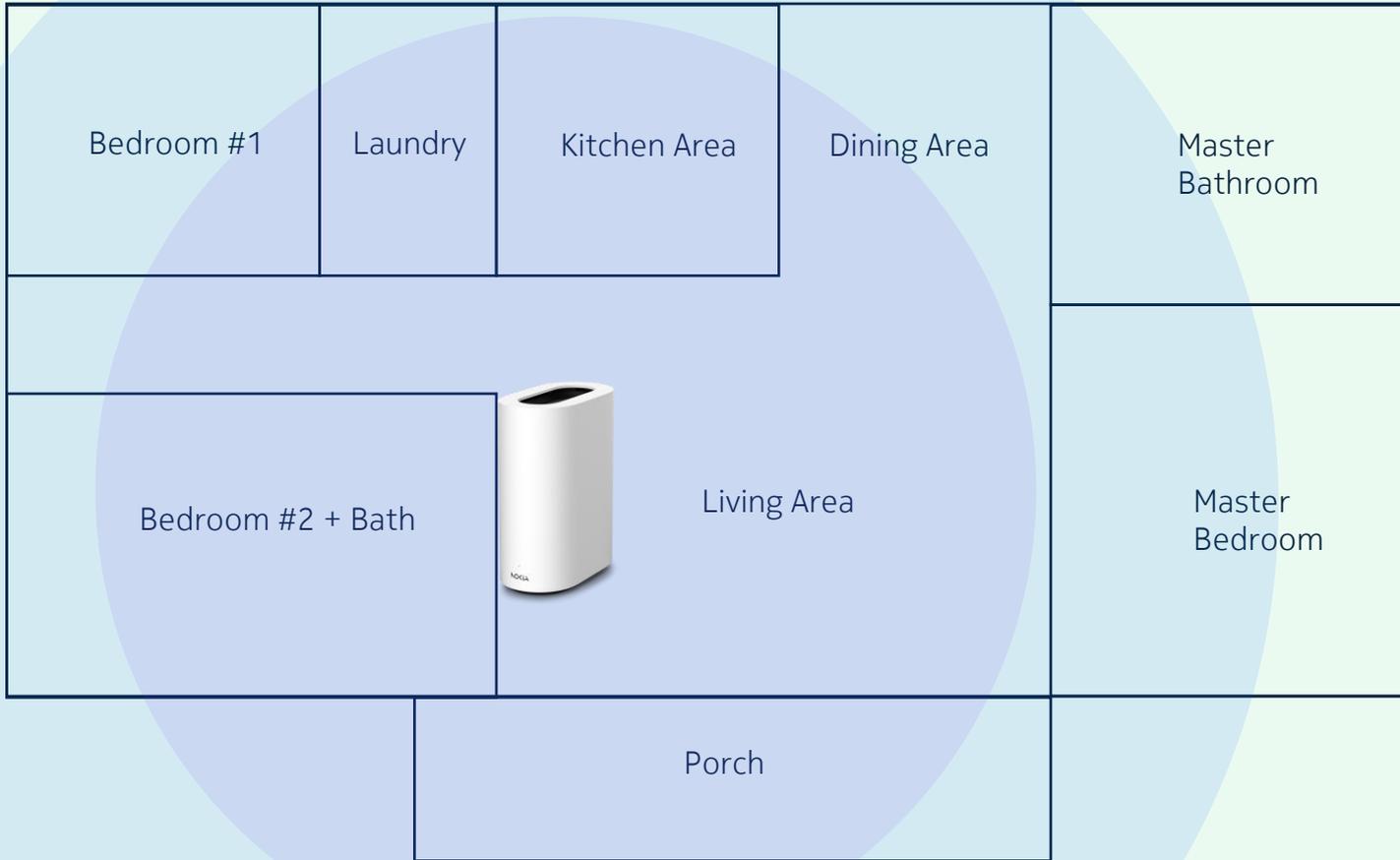
5ghz

6ghz









Extenders

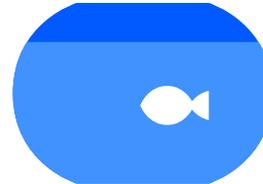
Setting up for success

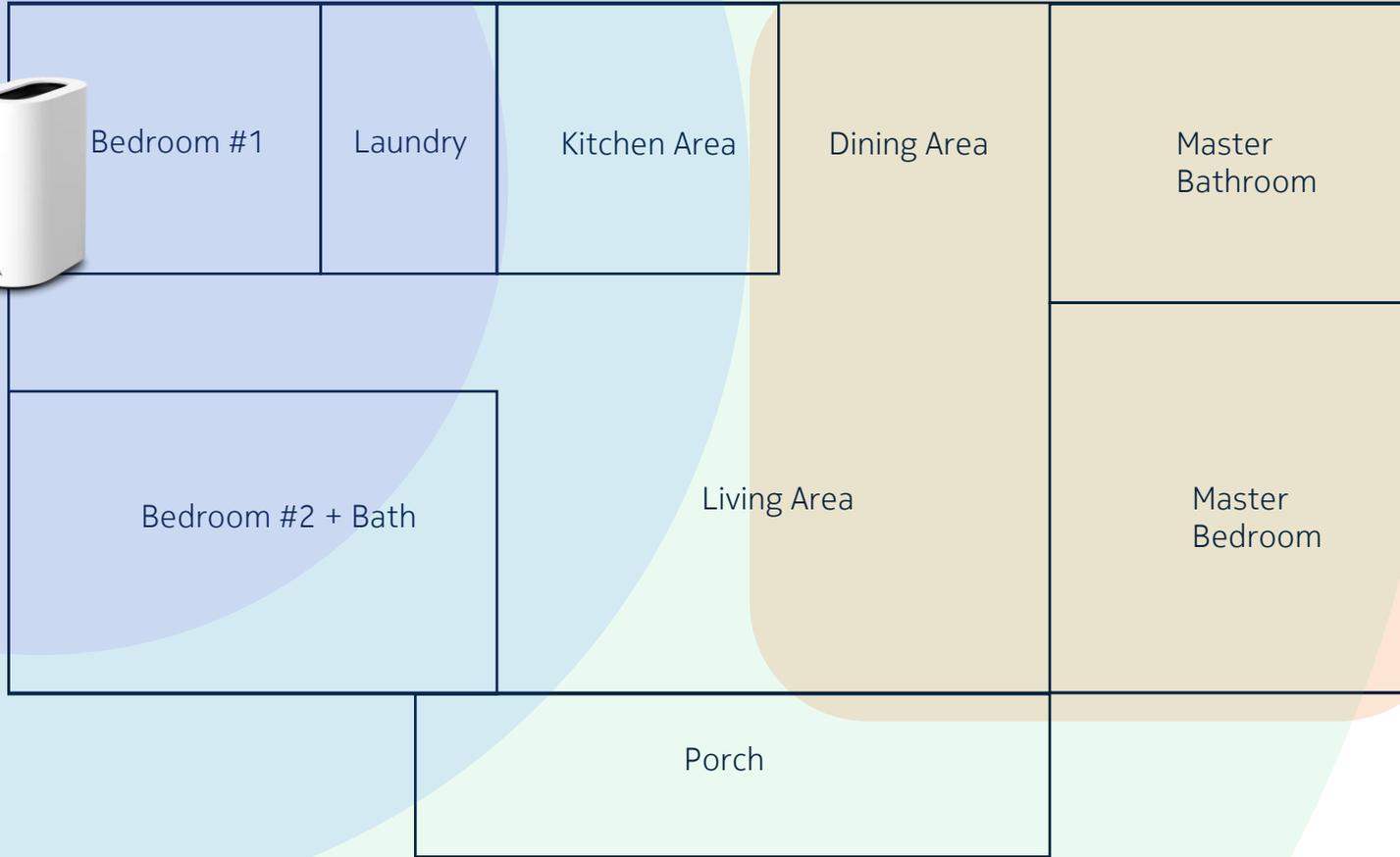
Location

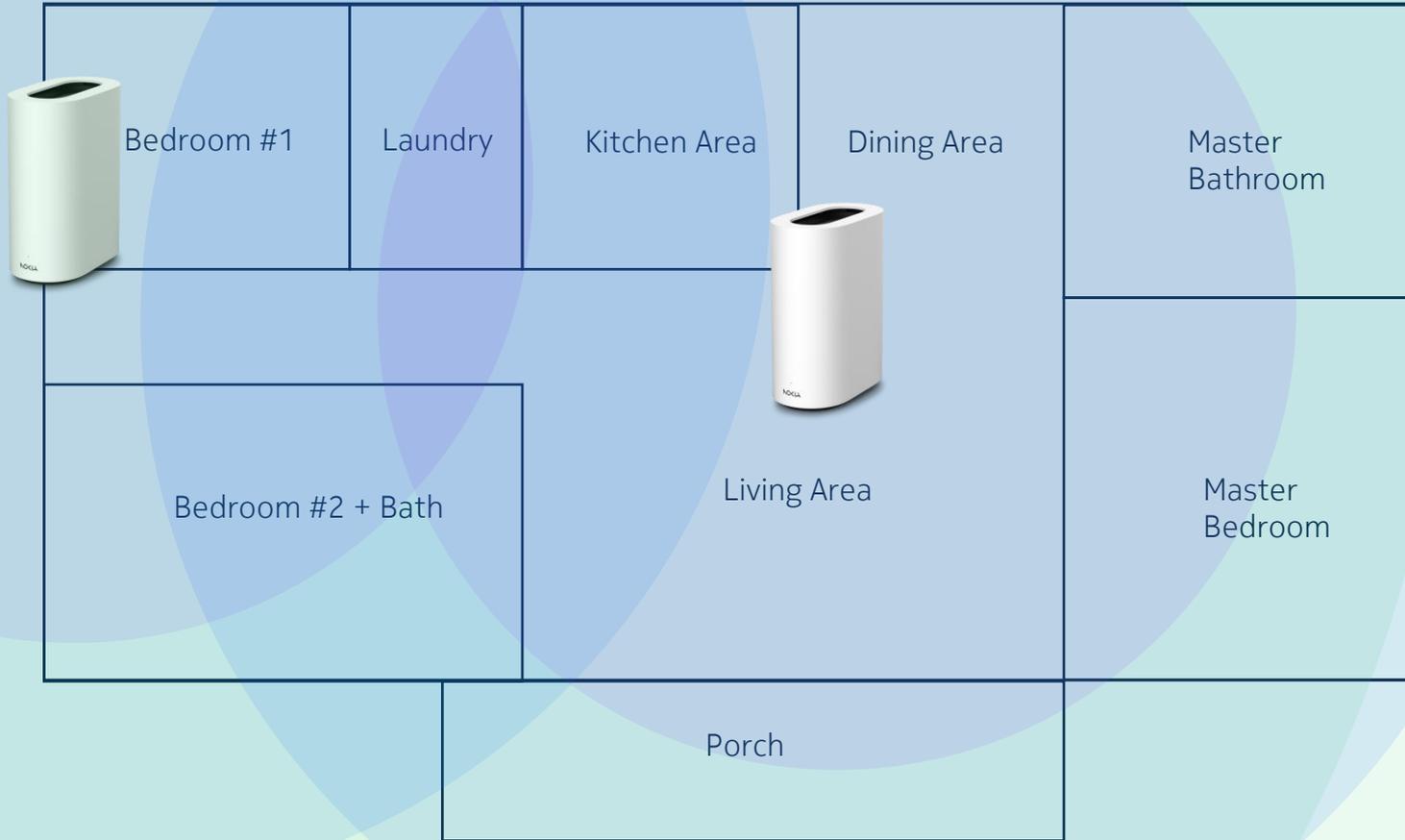
- Create a bridge to WiFi dead zone, don't place it in dead zone
- Be mindful of surroundings

Expectations

- They don't **always** provide an increase to the experience
- If not wired backhaul, speedtests will be reduced









Defining “good” WiFi experience





Aurora
ICE BAR

WARNING:
It is advised to avoid alcohol consumption while in the ice bar. The temperature is very low and you may experience discomfort if you are not used to the cold. Please drink water and stay hydrated.

WARNING:
Please do not touch the ice structures. The ice is very fragile and can break easily. Please be careful and do not drink from the ice.

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