WISP

Wireless Internet Service Provider

CAPPI Buenos Aires 2014

Salvador Bertenbreiter
Ubiquiti Networks

Agenda

- Intro / airMax M
- EdgeMax
- airFiber 5/5U
- AirMax AC
- Preguntas

El CPE

NanoStation -- 2008

Áreas de diseño

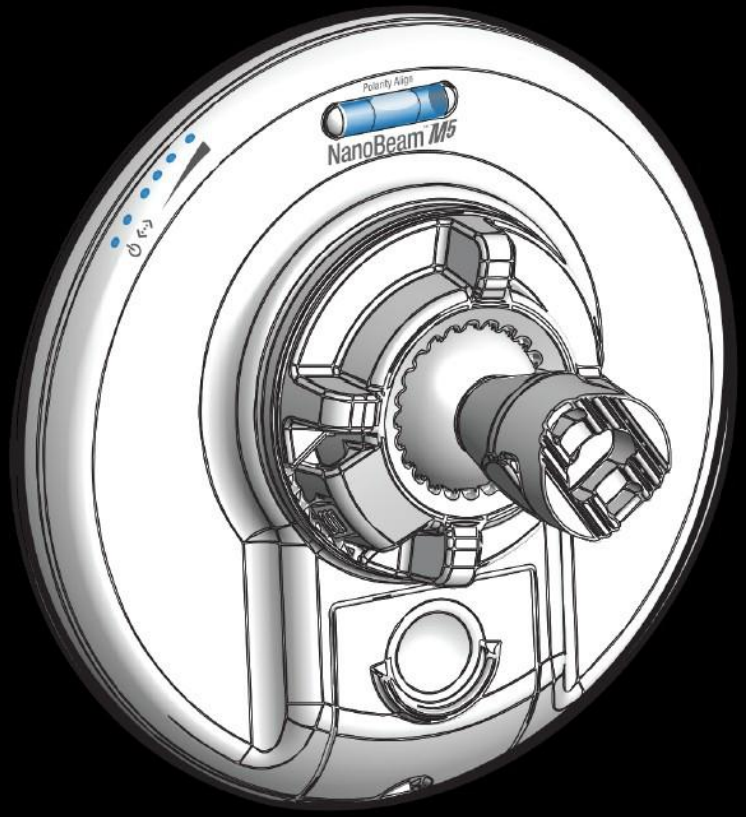
Uniformidad

Montaje / Alineación

Diseño industrial

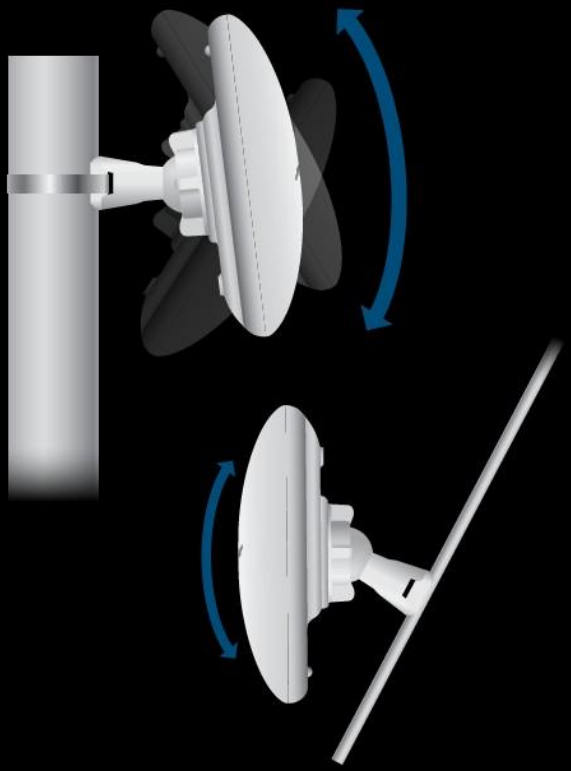
Performance

El CPE re-inventado



El CPE re-inventado

NanoBeam™M




NanoBeam™M
Uniformidad

NanoBeam™M

16dBi

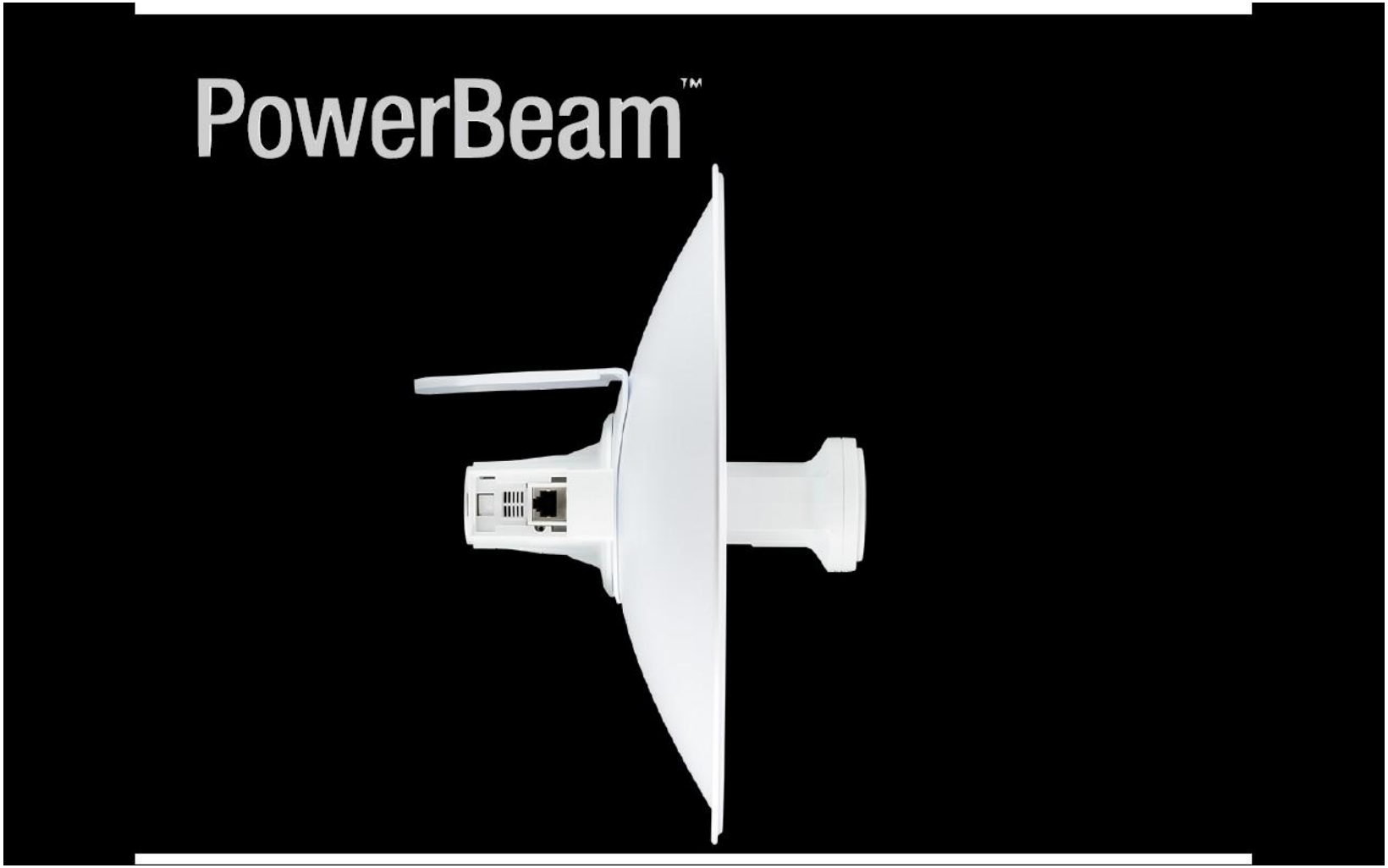
19dBi

PowerBeam™

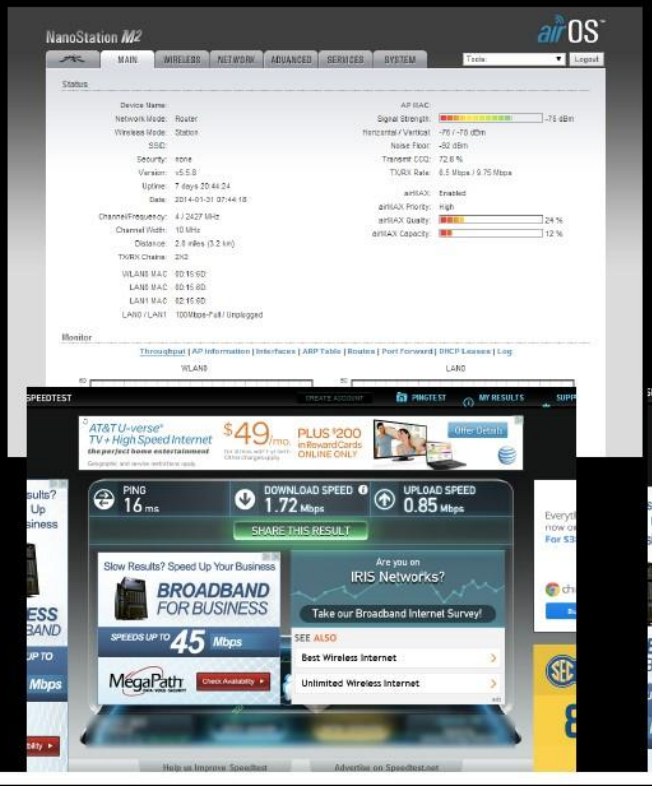
22dBi

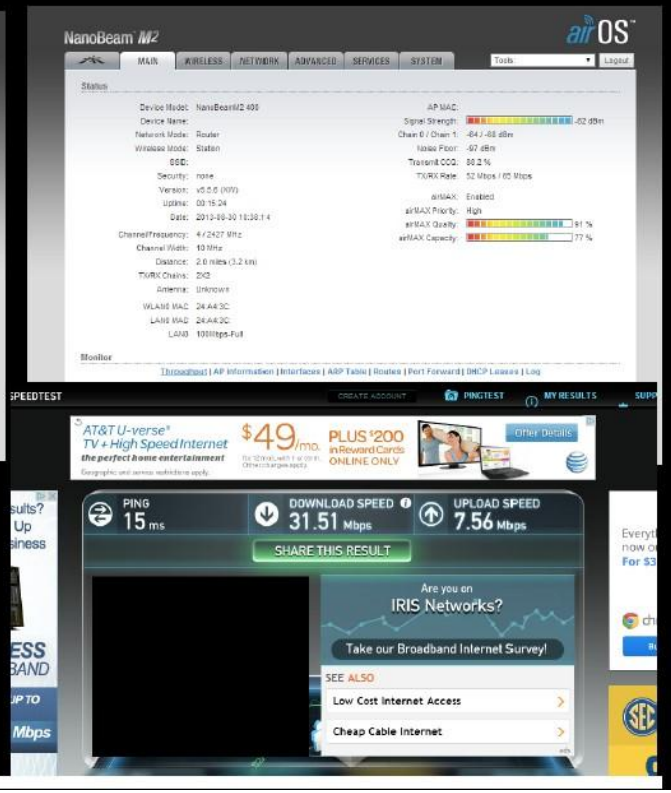
25dBi


PowerBeam™


PowerBeam™

Casos de Éxito

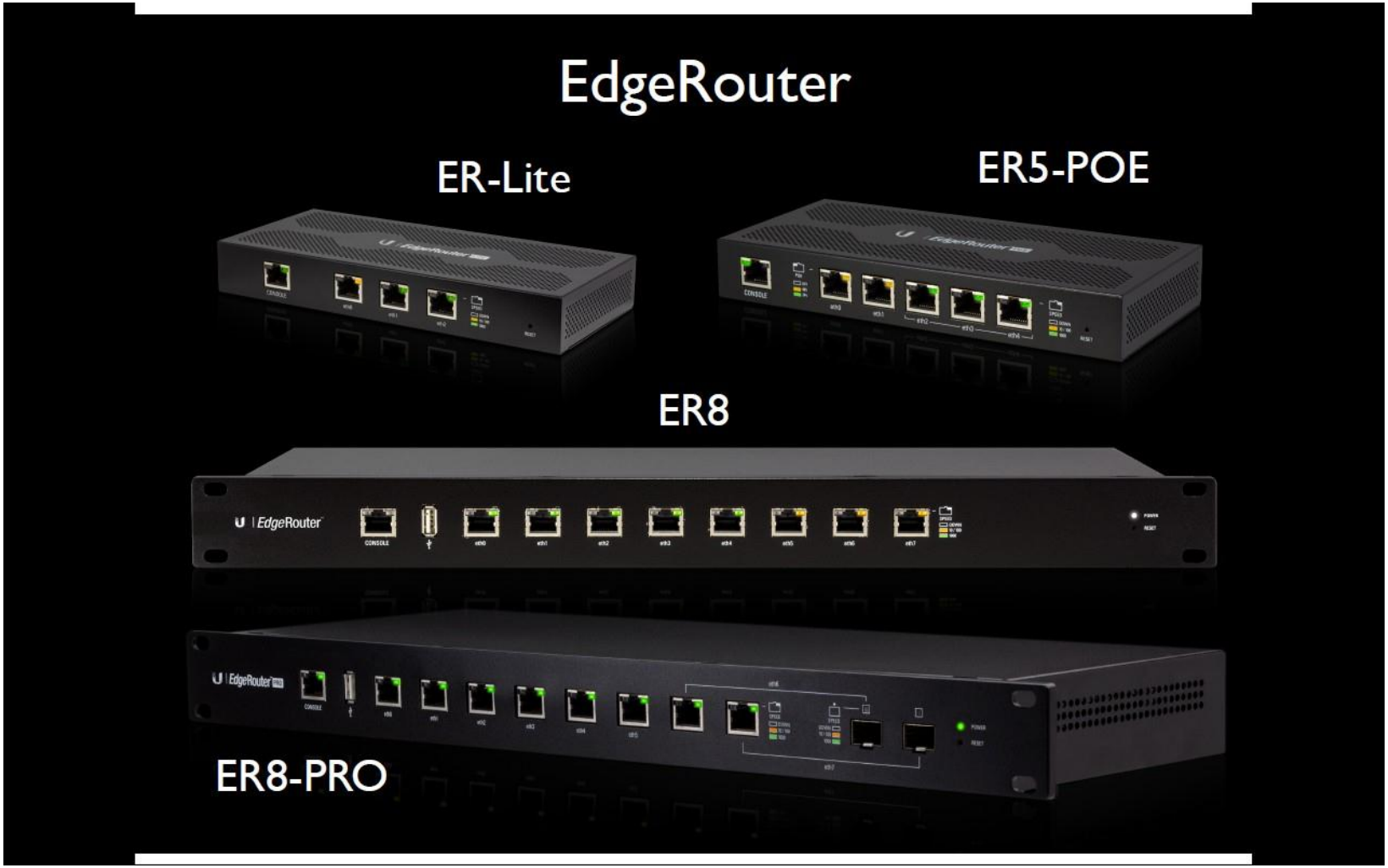




EdgeMax

Routers y Switches L3

EdgeRouter



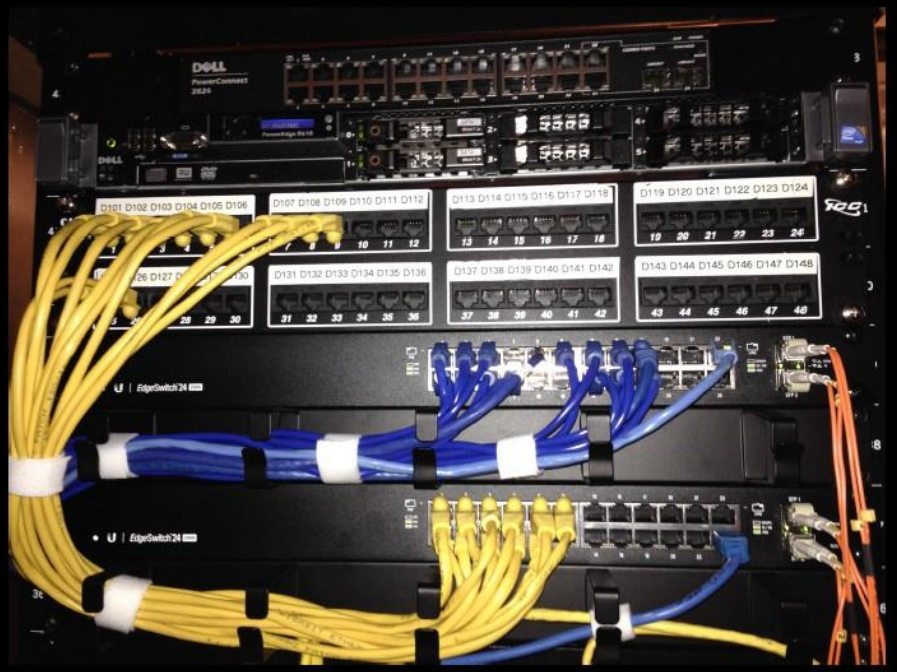
EdgeSwitch

ES24-250W/ES24-500W

ES48-500W/ES48-750W

EdgeSwitch

- 24 puertos
- 48 puertos
- 250W
- 500W
- 750W
- Capa 2 y 3



EdgeRouter

- 800Mbps de tráfico con 5% uso de CPU
- 2M pps
- puertos SFP

airFiber5/5U

- AF5 desde 5470MHz a 5950MHz
- AF5U desde 5725MHz a 6200MHz

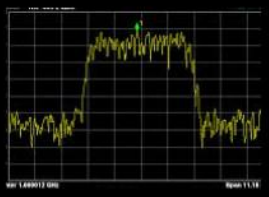
- Hasta 47dBm EIRP
- Antenas 23dBi
- Tx power 24dBm

BackHaul re-inventado

Precio

Rango

Eficiencia RF



Latencia

BackHaul re-inventado

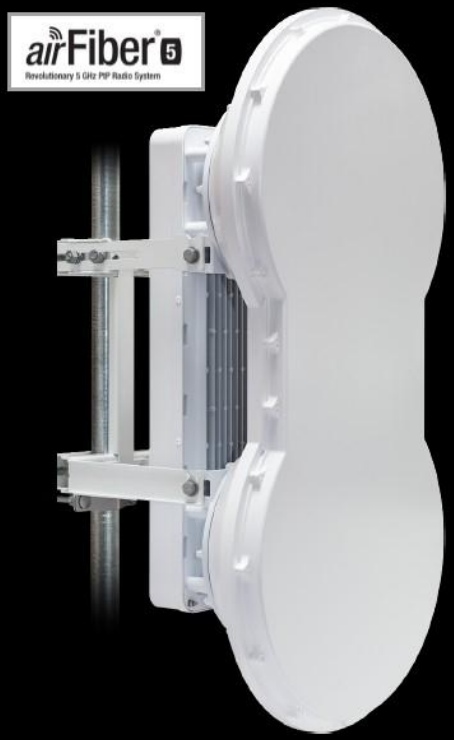
1.5Gbps+ Agregado
FDD

airFiber® 24

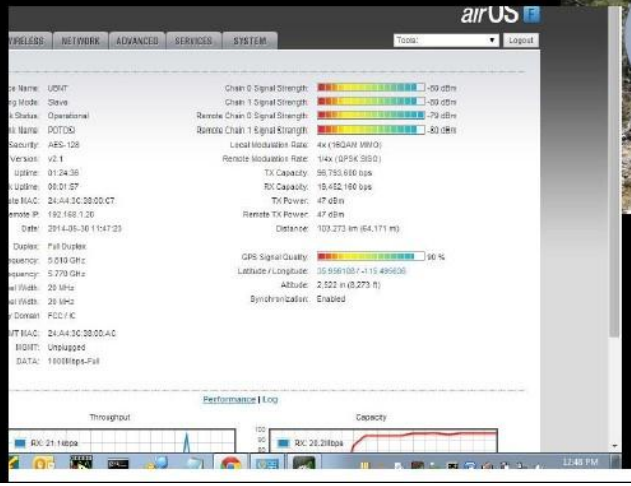
2012

Diseño BackHaul para Aplicaciones Específicas

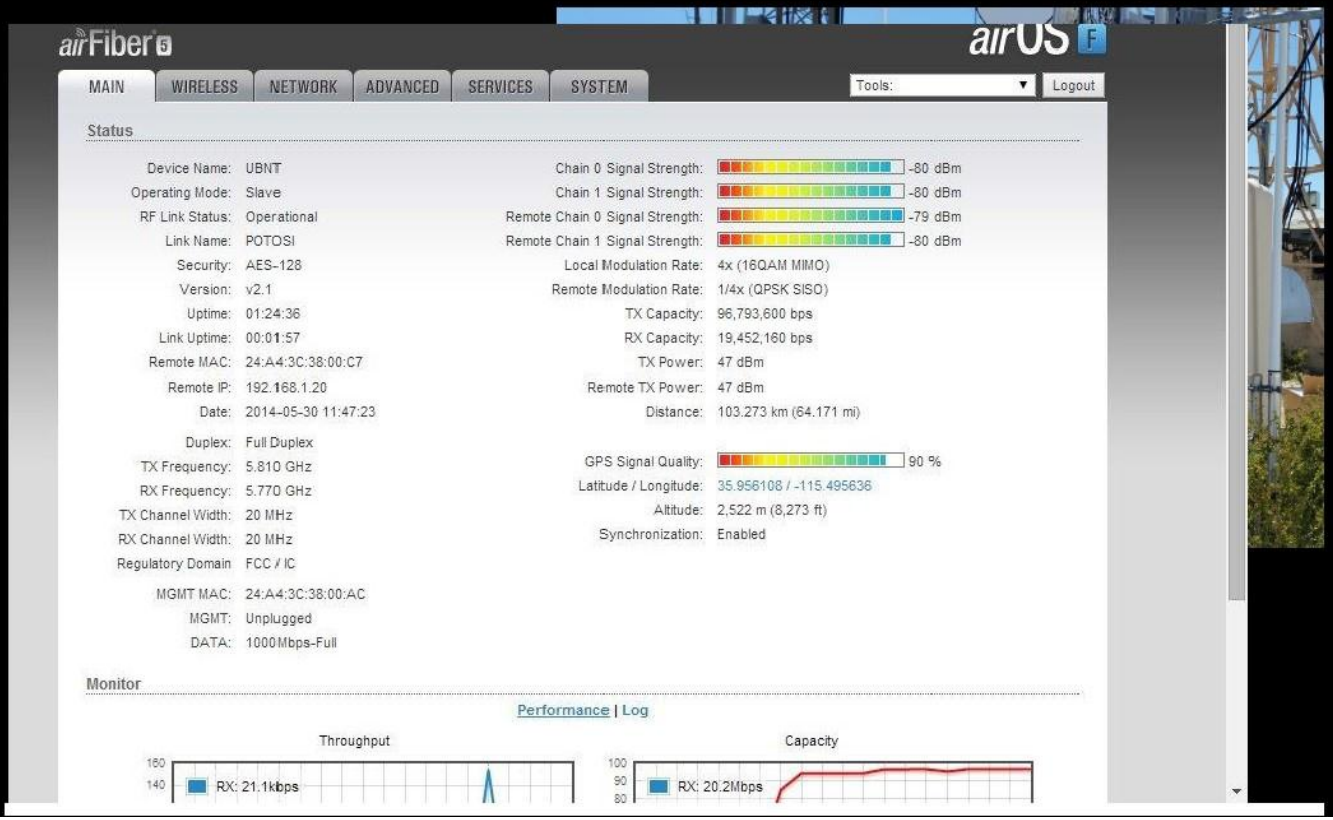
AF5/5U 1Gbps+ / 50MHz, FDD y 100km+ rango



AF5 - 100KM ALTA INTERFERENCIA

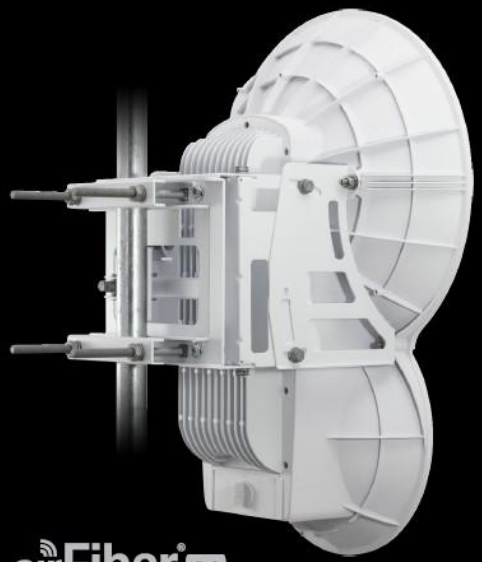


AF5 - 100KM ALTA INTERFERENCIA



airFiber® 100km+ 1Gbps+ FDD

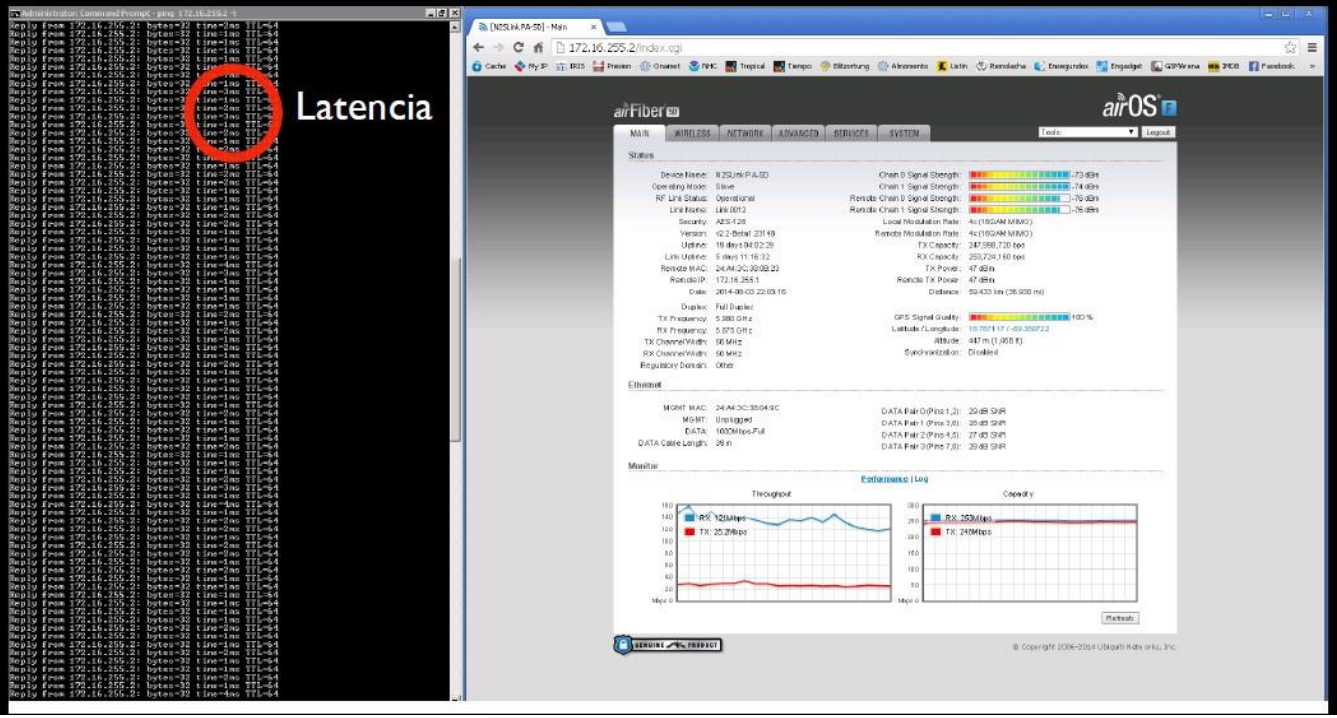
airFiber® 5
5GHz



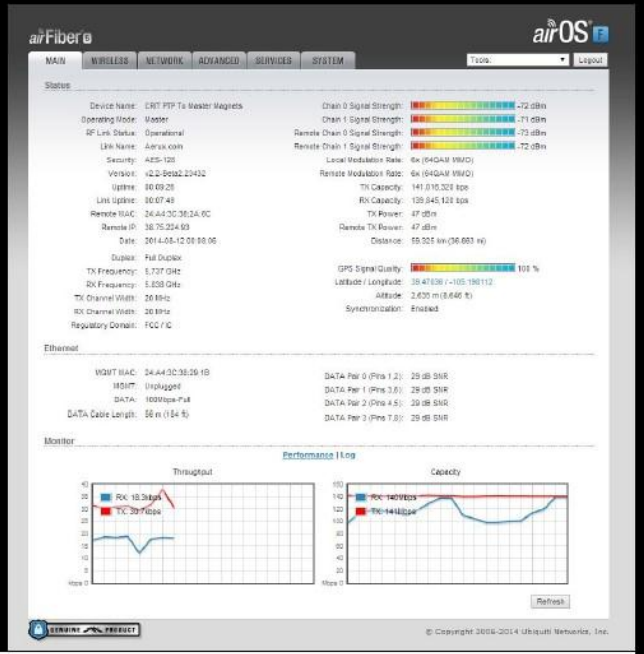
airFiber® 24
24GHz


airFiber 5

Aerux - 60KM
500Mbps



60KM 20MHz
280Mbps



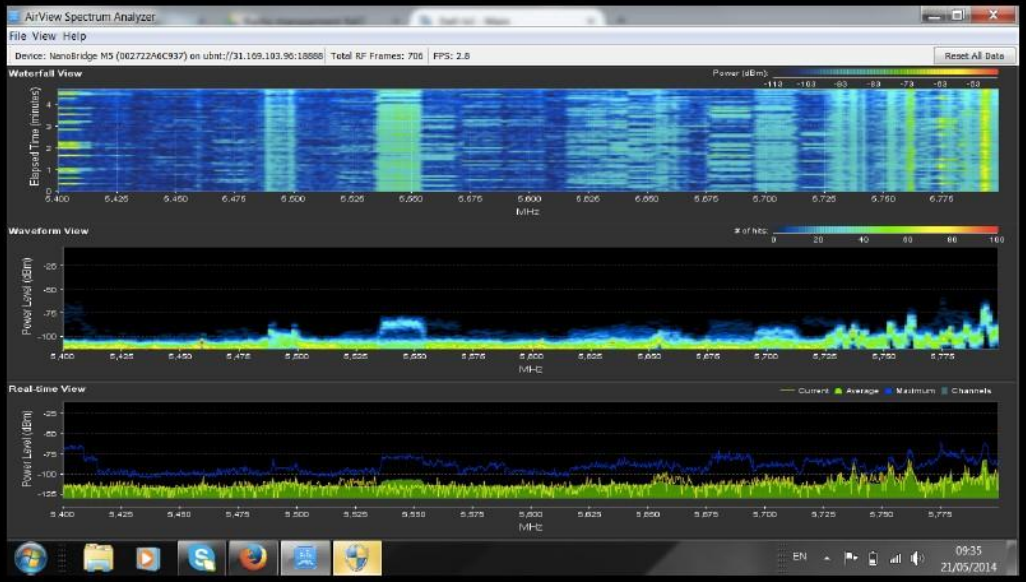
airFiber 2.2

- airView en airFiber 5/5U
- Herramienta Cálculo de Enlace
- Anchos de canal independientes Tx/Rx en modo FD.
- 1024QAM
- 10/20/30/40/50MHz
- Información sobre cable y fallas

airFiber 2.2

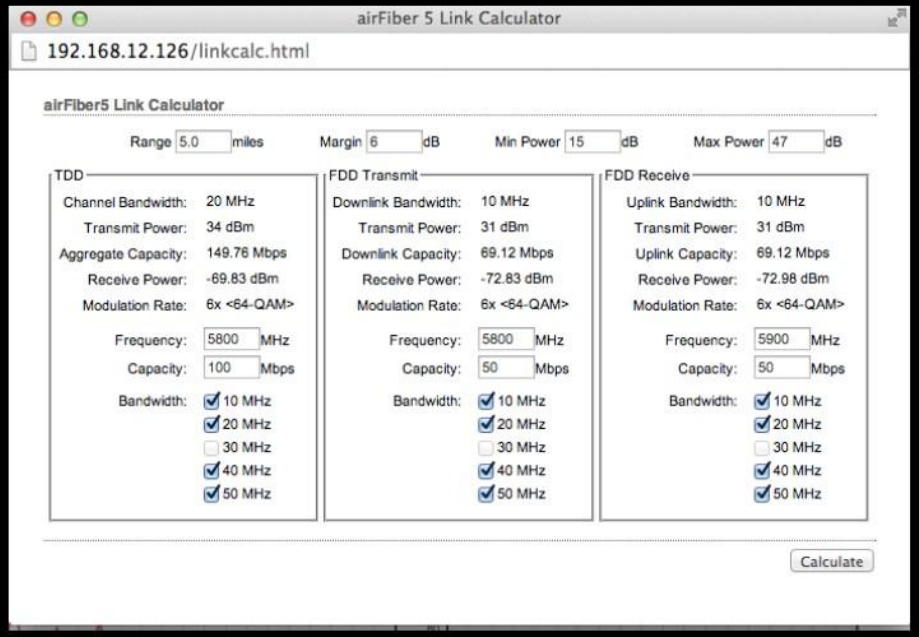
- Filtrado de Multicast
- GIGE Carrier sigue estado link RF
- Soporte SNMP / MIBs
- Flow Control (Pause Frames)
- Mejor rendimiento en situaciones de lluvia AF24

airView



Analizador de Espectro

Herramienta Cálculo Enlace



Mejor eficiencia de espectro

airFiber5/5U

Anchos de canal independientes Tx/Rx

CPE → BackHaul → Network

NanoBeam™M

airFiber®

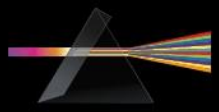
airMAX® ac

airMAX® ac

airOS 7 — Nuevo sistema operativo

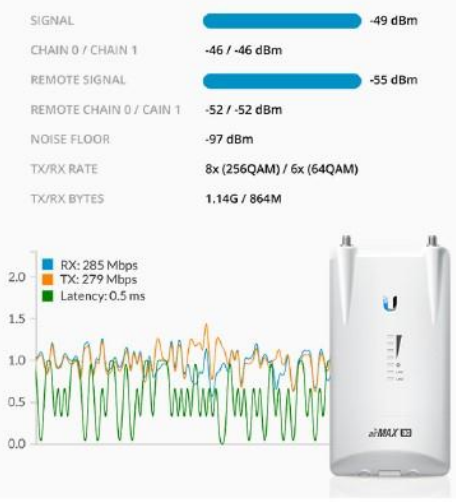
 Procesador dedicado airMax

 Productos

 Filtro frecuencia activo

airOS 7

- Channel width 10/20/30/40/50*/60*/80*
- HTML5 cambios se aplican más rápidamente
- Optimización dispositivos móviles
- Auto ACK timeout mejorado

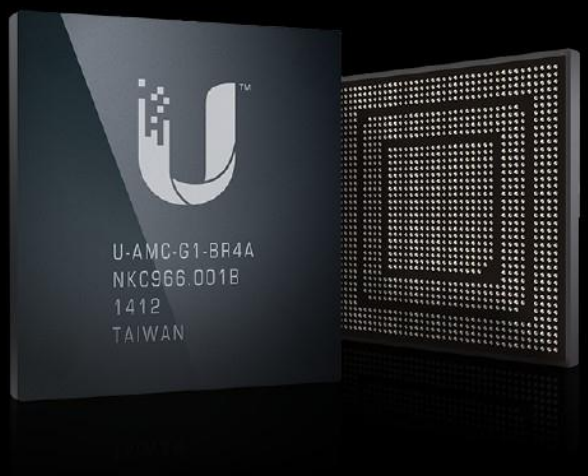


Procesador dedicado airMax

Menor latencia

Mejor performance

airView AC



Incluido en todos los productos airMax AC

PowerBeam 5AC

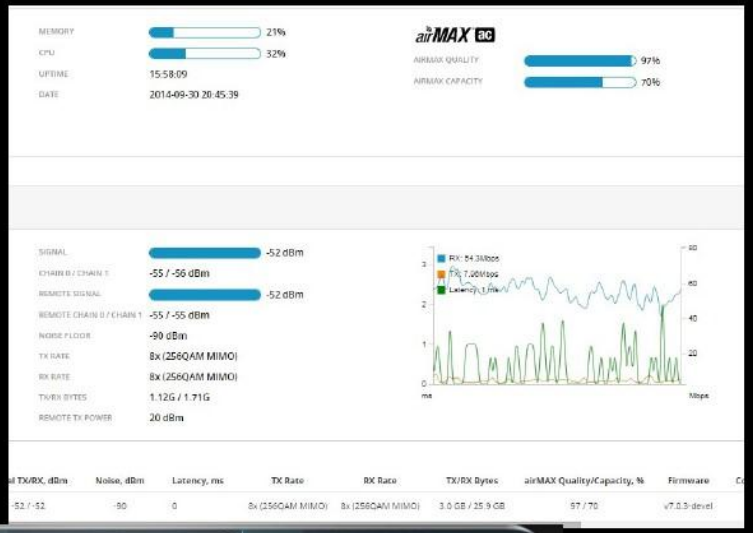
- PBE-5AC-500
- Hasta 450Mbps
- 27dBi
- 22dBm Tx

PowerBeam 5AC

- PBE-5AC-500
- Radome incluido
- Gigabit
- 24Vdc

PowerBeam 5AC

- 20MHz / 8KM



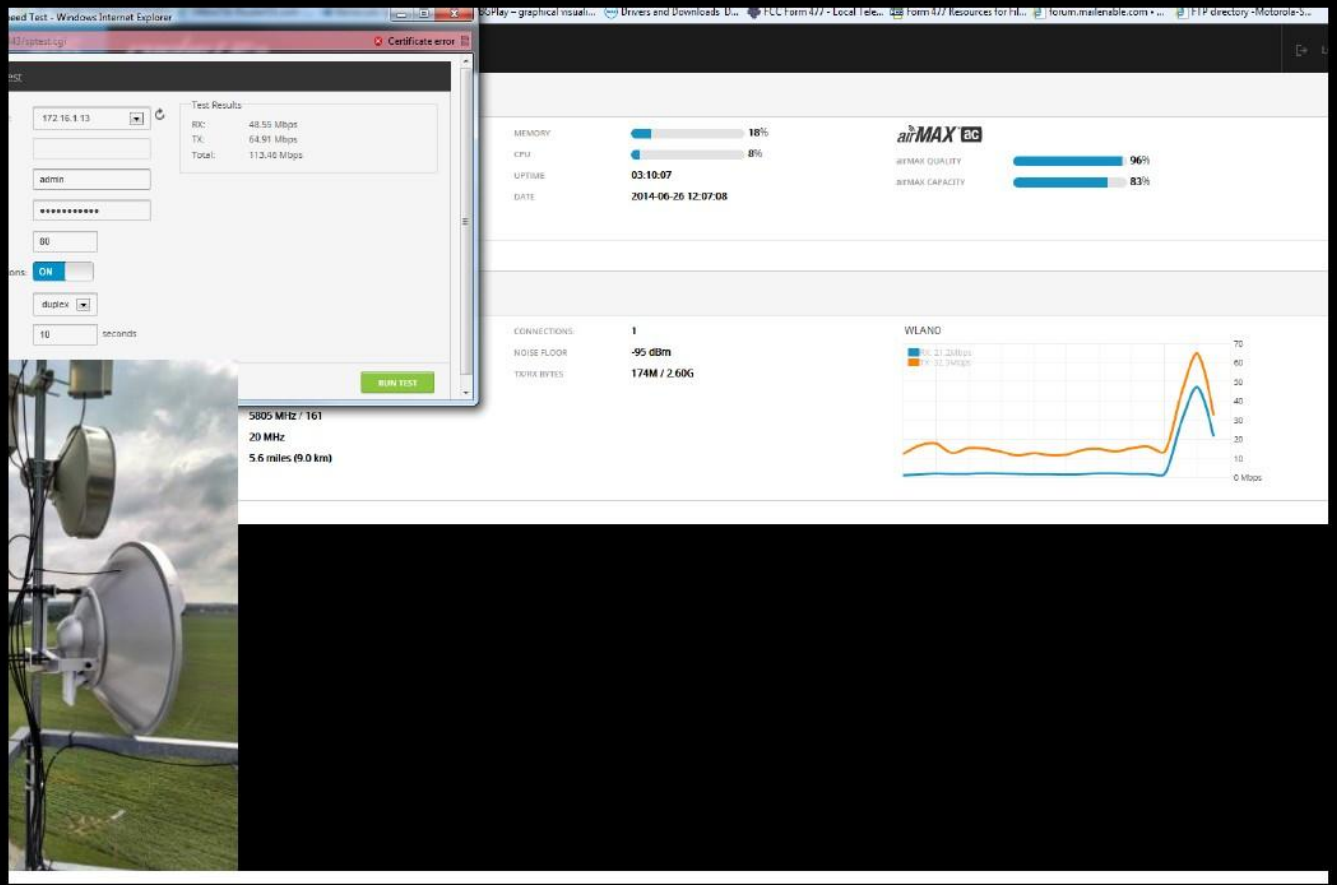
Rocket 5AC Lite

- Rocket 5AC Lite
- Hasta 450Mbps
- 27dBm Tx
- 2 x RP-SMA

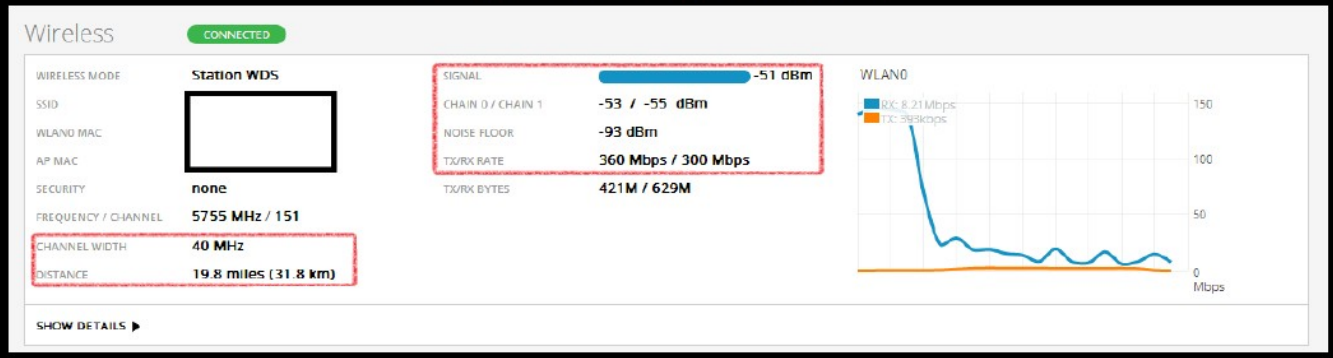
Rocket 5AC Lite

- Rocket 5AC Lite
- Gigabit
- Modo PtP
- Soporte PtMP mediante próximo firmware

Rocket 5AC Lite



Rocket 5AC Lite
Antena normal



RocketDish 31 AC

- 31dBi
- Radome incluido
- State-of-the-art antena
- Reducción ruido externo

RocketDish 31 AC

Antenas Sector AC

- AM-5AC22-45
  - 22dBi / 45 grad
- AM-5AC21-60
  - 21dBi / 60 grad
- Blindaje
- Rendimiento

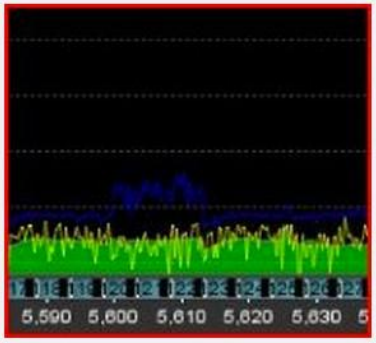
Antenas Sector AC

00:0D:67:23:83:59	xfinitywifi	NONE	-83 / -100	5.765	153

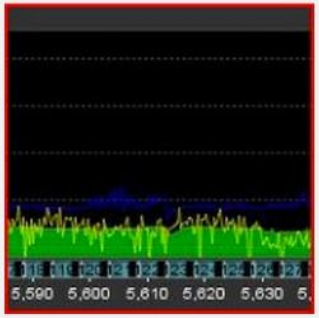
Now here's the new AirMax AC sector:

00:0D:67:23:83:59	xfinitywifi	NONE	-89 / -100	5.765	153

Here's what the Titanium sector sees on AirView



And here's what the new AirMax AC sector sees

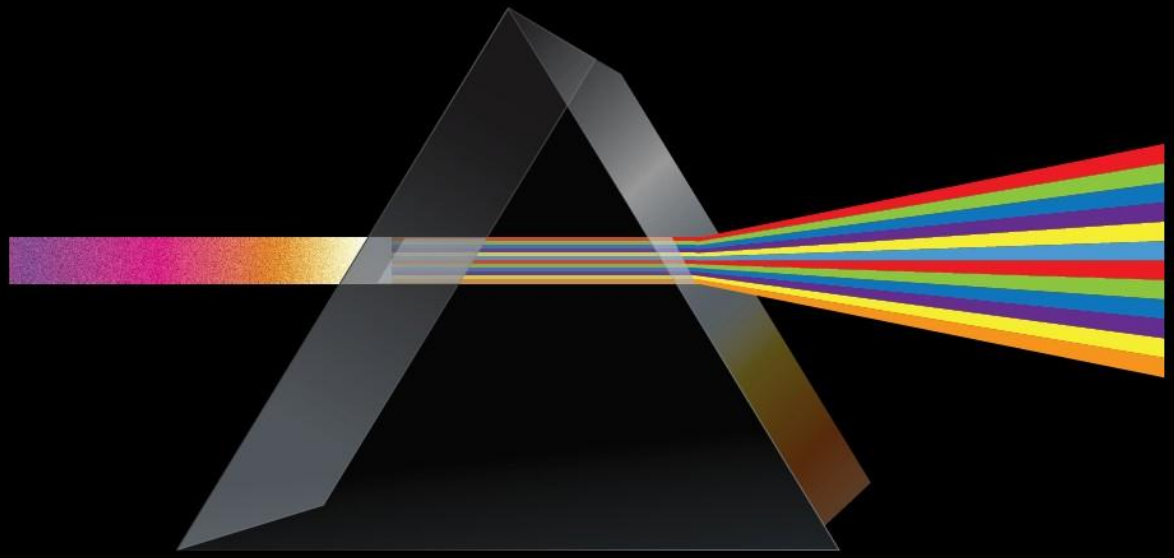


RES-Jo*** (2.1mi)
Old on AP51: 31M down, 16M up
New on AP62: 51M down, 20M up = **64% better down, 25% better up, 51% better tot**

RES-Nath*** (3.1mi)
Old on AP51: 41M down, 20M up
New on AP62: 45M down, 24M up = **9% better down, 20% better up, 13% better total**

RES-Bran*** (4.0mi)
Old on AP51: 8M down, 6M up
New on AP62: 16M down, 16M up = **100% better down, 260% better up, 228% better**

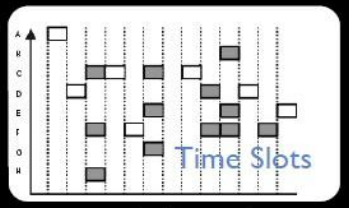
Filtro RF Activo



Capacidad Banda No Licenciada

Filtrado espacio

Filtrado tiempo



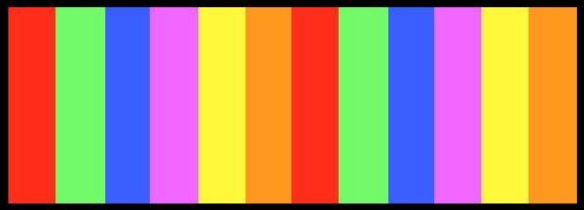
airMAX™
Revolutionary MIMO TDMA Protocol System

Filtrado Frecuencia

?

Ambiente RF baja energía

5GHz en baja energía



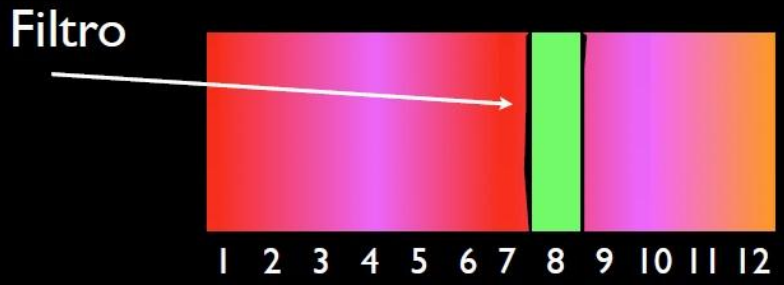
Canal 1 2 3 4 5 6 7 8 9 10 11 12

Ambiente RF baja energía

5GHz en alta energía

Canal 1 2 3 4 5 6 7 8 9 10 11 12

¿Cómo mejorar la selectividad?



Bien, pero hay 2 problemas:

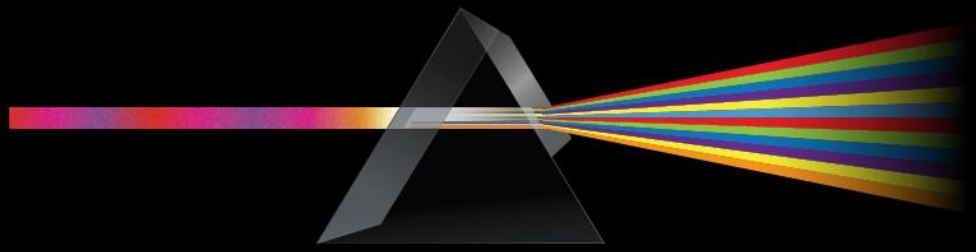
1. La operación del radio queda fija en un cierto canal
2. El ancho de banda *fraccional* es demasiado pequeño! un canal de 20MHz en 5GHz tiene un ancho de banda *fraccional* de sólo .04%.

¿Qué tal si integramos un filtro activo antes del radio?

¡Transformado el ambiente RF!

Introduciendo

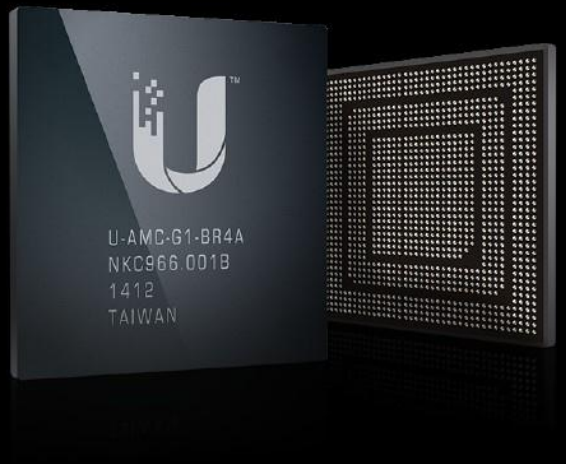
airPRISM



Filtrado Activo RF (HSR)


Otros productos

Gracias totales!



¿Preguntas?