



Introduction

5by5 Wireless and 5Bars Wireless were developed by a team of experienced technology entrepreneurs with many years of experience in wireless communications. They have invented a **full duplex wireless communication systems using one 360 degree antenna. The unique aspect of the invention is that it is a 100% hardware solution.**

The invention cancels 99.99% of the output signal including noise from the amplifier from the receiving input signal. Since the solution is hardware based, latency is measured in pico-seconds. Alternative approaches include software or software plus hardware with latency of milli-seconds.

The team at has achieved greater than 110 dB of separation between transmit and receive signals. Integration in CPE is required for a complete wireless network to be implemented. The CPE equipment requires a single circuit just before the antenna costing approximately 10 cents and is not complex to implement.

The technology currently supports DOCSIS 3.0 and 3.1 enabling similar data throughput as cable companies. This provides the capability for network operators to offer "Comcast-like" broadcast services on the same wireless network.

The system can be demonstrated to interested parties.

Advantages of the Invention

5by5 Wireless has much greater data throughput or five times greater wireless coverage. It allows a user the ability to talk and download a movie at the same time or allow a wireless service provider the ability to offer telephone, Internet and broadcast services in rural and remote areas.

Advantages include:

- Better use of spectrum with more data throughput
- Extended range requiring fewer towers, up to 25 miles

Key Benefits

Full Duplex (only one antenna)

100% Hardware Solution

Better Use of Spectrum

Five Times Wireless Range

More Data Throughput

Top Markets

Service Providers (wanting to extend reach to rural and remote communities)

Tower/Infrastructure Companies

Spectrum Owners

Mobile Devices

Wireless Routers

Industrial/Military/Commercial

Total Market Potential

Total Wireless Devices	1B
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Benefit Per Device	\$5
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Value Proposition, Increase in Market Share

Total All Markets	>\$500B
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Marketshare	\$5B
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Increase by 1%	
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- Invention is based upon a proven hardware solution that is still in use today minimizing the technology risk
- Opportunity for wireless operators to offer more services I.e. broadcast cable, plus Internet plus telephone service
- Low cost delivery system for education to rural and remote communities
- Complete infrastructure for government and business commerce in rural and remote areas

We are interested in licensing this to a single partner on either an exclusive basis with sub-licensing rights or by vertical and geographical markets.

The benefits of a license would include:

- Increased market share, margins, profit and share price with better performing wireless networks;
- A significant strategic competitive advantage;
- Leadership status in the category offering a unique new product opportunity with leading edge technology;
- Continued development resulting in new inventions and product opportunities protected by patents;
- Sub-licensing opportunity to other manufacture's in non-competing vertical and geographical markets.

For more information contact InventionShare:

Keith Taylor, Vice President of Acquisitions and Licensing
 ktaylor@inventionshare.com
 613-225-7236 x105

Intellectual Property

Trade Secrets	Yes
Patents Pending	Yes
Copyright (Methodology & Education)	Yes
Trademarks	Yes
Software	No

Vertical Horizontal Sublicensing Opportunities

Military
Islands/Country/Spectrum
Drones
Home Entertainment
Wireless Routers
IoT (Internet of Things)

Risk Factors

Prior Art	Low
Invent Around	Low
Slow adoption	Med
Market education	Low
Proof of concept circuits	Med



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Additional Market Information

A whole new industry with "Cable service" equivalent delivery into rural and remote areas of the world, islands and island nations and even cities in developing countries. The implementation examples below is just for one base station and one antenna. With the advent of DOCSIS 3.1 many of the few restrictions will be removed.

Broadband Services Technology (Cable TV)

- ✓ Unlimited subscribers
- ✓ Extremely low cost compared to a cable plant.
- ✓ Base station coverage: 50 km radius (30 Miles)
- ✓ Ideal technology for Developing Countries where copper and fibre infrastructure is easily stolen.

Subscribers



Spectrum	Additional Spectrum	Bandwidth				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">6 MHz</th> <th style="width: 50%;">60 MHz</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> • SD Movies: 10 – 12 • HD Movies: 6 – 8 </td> <td> <ul style="list-style-type: none"> • SD Movies: 100 – 120 <p>Or a mix of:</p> <ul style="list-style-type: none"> • SD Movies: 60 • HD Movies: 20 </td> </tr> </tbody> </table>	6 MHz	60 MHz	<ul style="list-style-type: none"> • SD Movies: 10 – 12 • HD Movies: 6 – 8 	<ul style="list-style-type: none"> • SD Movies: 100 – 120 <p>Or a mix of:</p> <ul style="list-style-type: none"> • SD Movies: 60 • HD Movies: 20 	<p>Will increment the number of users.</p> <p>Using DOCSIS 3.0 it is possible to accomplish:</p> <ul style="list-style-type: none"> • downstream: 218 Mbps (8 channels) • upstream: 32 Mbps (4 channels) 	<p style="text-align: center;">12 MHz</p> <ul style="list-style-type: none"> • 250 users for Internet and • 250 phone services
6 MHz	60 MHz					
<ul style="list-style-type: none"> • SD Movies: 10 – 12 • HD Movies: 6 – 8 	<ul style="list-style-type: none"> • SD Movies: 100 – 120 <p>Or a mix of:</p> <ul style="list-style-type: none"> • SD Movies: 60 • HD Movies: 20 					

**Example for 2 million users
In the urban area**

Frequency: **3.6 GHz**
Spectrum: **100 MHz**
Bandwidth: **400 Mbps**

CDMA will allow you to reuse the frequency every 2 KMs

RURAL areas

The Tower Company would become the

- Cable
- Phone and
- Internet Company

URBAN areas

The Tower Company can be the

- Cable and
 - Phone Company for a large number of users
- But only an Internet company for a small number of users



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Suburbs, Rural, Remote
95% of World Land (UHF)



Urban/Metro 5% of
World Land (VHF/SHF)



"For both UHF and VHF, we enable wireless devices to transmit and receive signals/information simultaneously that can double the capacity of wireless systems".

Benefits for UHF:

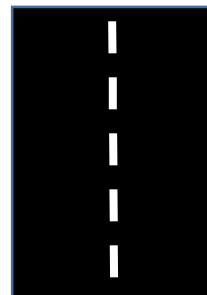
- Increase tower signal radius from one antenna by 5X or area by 25 times with
- No quality drop off within that range.
- Voice, data, entertainment (HD, broadcast and multicast)



Benefits for both UHF & VHF/SHF:

- Very low latency in the system (picoseconds vs. milliseconds)
- Double the data rate
- Much less congested network
- Low cost hardware solution as little as 10 cents per device

Office and home applications for wireless routers and devices replace half duplex speed with full duplex speed.



The value proposition is simple - pick your highway and avoid the traffic jams and collisions. And the pitch, "why would you not make your next router 5by5 Wireless™ and make your next smart phone, laptop or tablet 5Bars Wireless™ capable!" You can safely pass the competition.



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