

# US firm sees straight path to profit at 28 GHz and 39 GHz

Apr 13, 2015 by Toby Youell

**A company whose main assets are spectrum and intellectual property is funding research into millimetre waves (mmWaves) in the hope of developing an infrastructure ecosystem based on the spectrum it owns.**

Straight Path, a company with over \$20 million in cash, fewer than 12 employees and no debt, was spun out of US telecoms firm IDT Corporation two years ago with the express purpose of realising the value of mmWave spectrum.

There are so many different usages that you can have for spectrum and in order to make that happen you don't have to change the air, you have to change the regulations

Since then, the company has ploughed millions of dollars into demonstrating the viability of the bands at New York research centre NYU Wireless. The aim is to persuade the Federal Communications Commission (FCC) to reassign the bands from fixed to mobile in the US and establish a 5G ecosystem based on them.

To *PolicyTracker's* knowledge, this is the only such scheme being currently attempted for 5G, although similar initiatives have been tried in the past.

## “A unique story”

According to the company's founder and chief executive David Jonas, the company is based on the idea that spectrum at 28 GHz and 39 GHz is currently massively undervalued – especially in comparison to the mobile spectrum prices that were seen in the AWS-3 auction earlier this year.

“Our spectrum is valued at less than a tenth of a penny on a per MHz POP basis, which is an incredibly low number when you consider that in the recent auction for mobile spectrum in the US, spectrum sold for a median value of \$2.71 per MHz/POP,” he told *PolicyTracker*.

He identified the spectrum whilst working at his father's company, the pre-paid SIM giant IDT Corporation. IDT gained much of its spectrum at a bankruptcy auction in 2000 when it picked up Winstar Holdings for \$60 million.

Winstar had acquired 16 licences in the 28 GHz band and 931 licences in the 39 GHz band over the previous decade for \$40 million and \$200 million respectively in FCC auctions. These licences covered almost all of the US with the 39 GHz band and the majority of the country's key markets with the 28 GHz band. It tried to make a return on its investment by providing fixed wireless access (FWA) services, but the business struggled and eventually collapsed into bankruptcy.

IDT subsequently voluntarily forfeited some of the 39 GHz band licences, leaving it with 629 licences in this band. It later gained more spectrum, particularly in the 28 GHz band, in connection with a settlement with the former chief executive of its subsidiary IDT Spectrum.

After IDT failed to make a viable FWA business, the spectrum lay dormant until Jonas, who by 2012 was IDT's vice president of business development, concluded its potential value was huge.

In total, the company now has 133 licences in the 28 GHz band and 828 licences in the 39 GHz band. It is focussing its work on the 39 GHz band, partly because there are more incumbents in the 28 GHz band and partly because its 39 GHz band holdings are more extensive.

In July 2013, Jonas – just 26 at the time and whose training was for a career as a rabbi rather than an electrical engineer – spun the company off from IDT and renamed it Straight Path. His father, Howard Jonas, retains beneficial ownership because the shares he owns give him greater voting rights than the other shareholders – although there is a Chinese wall between him and the company's operations.

“It's a unique story and I think some people are attracted to that and some people are turned off by that,” Davidi Jonas said, “but the more we can consistently deliver results and show that our business plan and our operations are sound and profitable I think the less people will think about the noise around the theatrics and focus on how we run the business”.

## **Lobbying for mobility**

“What's fascinating and such a great opportunity about spectrum speculation is you're dealing with an inherently fungible asset – you're dealing with air,” said Jonas.

Straight Path's first priority is to change the rules around the bands' use in the US from fixed to mobile. “There are so many different usages that you can have for spectrum and in order to make that happen you don't have to change the air, you have to change the regulations.”

Over the past two years, the company has been trying to demonstrate to the FCC that the spectrum should be reclassified as a mobility band. To this end, it has actively participated in the FCC's Notice of Inquiry about spectrum above 24 GHz.

The company spends around \$2 million dollars a year on research and lobbying. Jonas insists this is a good investment.

“We're a company that owns 255 billion MHz/POP of spectrum in the US,” he said. “If we were worth one cent per MHz/POP, which would be 270 times less than mobility spectrum, the value of our company would be two and a half billion dollars, so to spend 2 million dollars a year to transition that spectrum to become mobility spectrum is just an insanely good return on investment.”

We believe that in democratic societies the governments will be reasonable and will have the best interest of the general public at heart

## **Lobbying for 5G**

Aside from wanting to profit from a bet that the value of spectrum will continue to rise, Jonas said that the other side of the rationale behind Straight Path's research funding is that it could be used for 5G.

Because research into 5G is looking on a global scale at mmWave bands with few incumbents, he explained, there is a real possibility that the industry will agree on spectrum that can be globally harmonised. Straight Path's mission is to do everything in its power to make its own bands the ones that are chosen.

To that end, it has contributed funds to NYU Wireless, which is exploring the propagation characteristics of these extremely high frequencies. Jonas plans to participate in the cellular standard-making body, the 3GPP, in the future. The firm has also poached former Samsung senior director Jerry Pi and is looking at acquiring similar spectrum in administrations beyond the US.

The company still has not yet decided what to do with the spectrum if the band is refarmed. Ideas include reselling it, leasing it or running its own operations.

## **Could 5G use the 3.5 GHz band instead?**

Jonas believes that Straight Path is in the only company – with the possible exception of Dish – that is based on spectrum speculation.

Companies have been known to invest in spectrum in a bid to establish an ecosystem. In 2008, Intel acquired a

TDD 2.6 GHz licence in Sweden to promote WiMAX, and in the UK Qualcomm acquired 40 MHz in the 1.5 GHz band presumably to promote MediaFLO. Neither of these technologies became as successful as hoped, and *PolicyTracker* is not aware of any similar purchases in recent years, or any current plans to do so.

In the UK, the 28 GHz and 40 GHz bands were auctioned in 2008 for FWA. The 39 GHz band (37–39.5 GHz) is assigned for fixed services only on a first come first served basis. Many of the businesses that acquired spectrum in the 28 GHz band, such as Transfinite, Red-M, and Faultbasic, have slipped into dormancy or bankruptcy.

Some of these frequencies are used by mobile operators for backhaul, but much of the spectrum has been acquired directly or indirectly by UK Broadband to support its enterprise customers. The company now has licences in the 3.5 GHz, 3.6 GHz, 3.9 GHz, 28 GHz, and 40 GHz bands, as well as the 1800 MHz guard band. The company's chief executive Nicholas James told *PolicyTracker* that it considers buying new licences when spectrum becomes available, but did not say whether he had active plans.

Nevertheless, his suspicion is that for the most part, the next generation of mobile services will be provided on lower frequencies. “We think that the propagation characteristics of 3400–4000 MHz make these bands likely to be of wider interest for 5G spectrum access and most of our testing and development for 5G will involve 3.5 GHz, 3.6 GHz and 3.9 GHz,” he said. He added that 5G may emerge as an evolution of LTE, noting that UK Broadband is one of the first operators in the world to use LTE in the 3.5 GHz band for its FWA service Relish.

At the ITU-R level, both the 28 GHz and 39 GHz bands are allocated for fixed, fixed-satellite (Earth-to-space at 28 GHz and space-to-Earth at 39 GHz), and mobile services. There is also a secondary allocation for Earth Exploration-Satellite (space-to-Earth) for the 28.5 GHz–29.1 GHz and 39 GHz bands. Some European countries also use the 39 GHz band for defence systems.

If Jonas is to profit from these bands then he will have to persuade many national regulators and standards agencies to green light mobility (and preferably 5G) in these bands. This is not a problem that seems to daunt him.

“We believe that in democratic societies the governments will be reasonable and will have the best interest of the general public at heart and in order to preserve that interest they will allow flexible rules in order for the spectrum to be best utilised,” he said. •

## Related content

- US AWS-3 auction ends with a \$45 billion bang (**ATNewsItem**)
- Research suggests millimetre waves could be used for 5G (**ATNewsItem**)
- US 3.5 GHz band sharing plans might work at 5 GHz (**ATNewsItem**)
- Mobile operators to focus on sub-1 GHz spectrum for 5G (**ATNewsItem**)
- Manufacturers enter European spectrum market (**ATNewsItem**)