

## **Straight Path Communications Inc. (STRP)**

### ***Setting the Story Straight***

We are short shares of Straight Path Communications, a disgraced “5G” hype vehicle whose stock price surged last week for an unusual reason: the announcement of a harsh regulatory crackdown. After a pseudonymous short seller in 2015 accused Straight Path of “fraud,” the FCC opened its own investigation into whether the company had violated its legal duty to actually provide service rather than merely hoard spectrum for the sake of speculation. To end this investigation, Straight Path agreed to pay up to \$100 million over time, surrender many of its licenses, and sell its entire remaining spectrum portfolio, with 20% of the sale proceeds going to the FCC.

The market greeted this news joyously, apparently relieved that Straight Path had avoided an even more draconian penalty and convinced that a spectrum sale would be fast and lucrative. This optimism is badly misplaced. Straight Path’s spectrum is worth far less than the company’s current half-billion-dollar market cap. Indeed, as we discuss below, Verizon is set to buy a similar amount of higher-quality spectrum from a sophisticated, deep-pocketed seller – Carl Icahn – for just \$200 million, 61% lower than where Straight Path trades, implying massive downside for its stock price *even before taking into account the harsh FCC penalties*. Adjusting for these penalties and the lower quality of Straight Path’s spectrum, we believe the true downside exceeds 70%. The notion that a company that holds less than \$10 million in cash, burns \$7 million a year, and must pay out \$15 million in fines in the next nine months will drive a drastically harder bargain than Carl Icahn – in a government-mandated fire sale – is beyond absurd. Yet to own Straight Path at this price, that’s what one must believe.

Further weakening Straight Path’s bargaining position is the immense supply of alternative millimeter-wave spectrum. In a rulemaking concluded last July, the FCC effectively expanded the 39GHz band that houses the vast majority of Straight Path’s spectrum by 71%; with so much directly adjacent greenfield spectrum, Straight Path’s holdings are nothing special. Moreover, a follow-on rulemaking, initiated at the same time and now in its final phase, proposes to open up an additional *18 gigahertz* of mmWave spectrum for mobile use, likely *quintupling* the existing inventory and further diluting Straight Path’s value.

As much as management might want to raise capital and hold out for an unrealistic sweetheart deal, a little-noticed term of the FCC settlement makes that a dangerous strategy, allowing the FCC to re-open its investigation after twelve months and potentially revoke Straight Path’s licenses. Likewise, shareholders confident that Straight Path’s former parent company will foot the bill for its fines fail to appreciate the legal subtleties that put this outcome in serious doubt. But who can blame them? At this point, hope is the only real asset Straight Path has left.

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## I. Straight Path's Spectrum Isn't Worth Much

What will potential buyers pay for Straight Path's portfolio? The most obvious benchmark is the Verizon/XO Holdings deal [announced](#) last February. In that set of transactions, Verizon acquired rights to two distinct assets: the fiber-optic network business of XO Communications, bought for \$1.8 billion (with expected synergies and tax benefits valued at \$1.5 billion); and the millimeter-wave spectrum held by an XO Holdings subsidiary called Nextlink. In lieu of an outright purchase, Verizon is leasing the spectrum through 2018, with an option to buy it at expiration, which observers widely expect Verizon to exercise.

Unfortunately, Verizon's initial press release didn't disclose what it would actually have to pay to acquire the XO spectrum in 2018. However, industry sources, including the investment bank UBS, indicate that the strike price is \$200 million. Below we reproduce the relevant section from a February 22 UBS research note on Verizon:

### UBS Disclosure of Verizon Purchase for XO Spectrum

#### Option to buy wireless licenses for \$200M

Verizon will lease XO's spectrum for a nominal fee for the next few years, with an option to buy for \$200M by year-end 2018. LMDS is very high frequency spectrum in the 28-31 GHz bands, which Verizon believes will be well-suited for 5G. XO's LMDS spectrum covers some of the largest U.S. metros including New York, Boston, Chicago, Minneapolis, Atlanta, Miami, Tampa, Dallas and Austin, Denver, Phoenix, San Francisco and Los Angeles.

Source: UBS, "Verizon Communications: XO Fiber Network Purchase All about 5G," February 22, 2016, p. 1

[Investor's Business Daily](#) summarized the same UBS piece and provided the same \$200 million figure; the spectrum expert Tim Farrar has also alluded to it publicly.<sup>1</sup> Though XO is a private company (solely owned by Carl Icahn), FCC filings allow us calculate how much mmWave spectrum it holds, which amounts to 189.6 billion MHz-pops, the vast majority of which is in the 28GHz LMDS band. Paying \$200 million for roughly 200 billion MHz-pops implies a price per MHz-pop – a common spectrum valuation metric – of a tenth of a penny.

<sup>1</sup> See e.g. his tweets from [July 30](#) ("And VZ \$200M option on XO spectrum sets pretty hard limit on 39GHz which will be worth less per MHzPOP") and [September 5](#) ("And why pay a huge premium for midband when high frequencies will be incredibly cheap (viz \$200M option price for XO spectrum)").

Verizon/XO Implied Spectrum Pricing	
XO MHz-pops (mm):	
LMDS	185,811
39 GHz	3,804
Total	189,615
XO spectrum purch. price (\$mm)	\$ 200
<b>Value per MHz-pop</b>	<b>\$0.0011</b>
<i>Source: FCC filings, Kerrisdale analysis</i>	

Strikingly, this price closely resembles what MetroPCS paid Straight Path for a combination of LMDS and 39GHz spectrum in the New York, San Francisco, Las Vegas, and Orlando markets in 2012 – namely, \$0.0010 per MHz-pop<sup>2</sup> – implying that, notwithstanding the dawn of 5G and renewed enthusiasm about mmWave technology, high-frequency spectrum prices have barely moved. Nor is there any indication that XO's spectrum sparked a fierce bidding war among Verizon's competitors; to the contrary, Icahn's [public statement](#) about the deal expresses not triumph but resignation:

Although this sale to Verizon does not represent a significant annualized return on our investment, we believe that in today's environment it does represent the best achievable outcome for the company's customers, employees and owner.

How does XO's spectrum portfolio compare to Straight Path's? In sheer size (as well as geographic scope), it's similar; XO holds 190 billion MHz-pops, while Straight Path holds 222 billion. Simply applying the same aggregate price per MHz-pop to Straight Path's portfolio would value it at \$234 million – 54% below the company's current market cap *even before factoring in the FCC penalties*. Clearly the gulf between where Straight Path is trading and where the Verizon/XO transaction implies it should be is enormous.

Refining the analysis further, we exclude from XO's total MHz-pops the portion of the LMDS band that has *not* been authorized for mobile use – everything outside the A1 block that runs from 27.5 to 28.35 GHz. Valuing non-A1 LMDS spectrum at zero necessarily implies a higher price for the remaining, almost entirely A1 spectrum, which amounts to \$0.0016 per MHz-pop. While this price might serve as a reasonable benchmark for Straight Path's own 28GHz A1 spectrum, it's too high for its far larger holdings of 39GHz spectrum, which suffer from inferior propagation as a result of their higher frequencies and thus are more costly and difficult to deploy. To adjust for the difference in frequencies, we use a [piece of technical analysis](#) prepared by AT&T Labs' Advanced Wireless Technology Group and submitted to the FCC in

<sup>2</sup> See Straight Path's [FY2013 10-K](#), p. 12, and FCC filings including transaction-related public interest statements ([1](#), [2](#)). MetroPCS paid \$6.8 million for what we estimate to be ~7.1 billion MHz-pops.

July 2016, comparing the simulated performance of 28 and 39GHz spectrum.<sup>3</sup> AT&T concludes that “a licensee will need somewhere between 44% - 66% more spectrum in the 39GHz band to provide the same cell edge data rate with the same cell radius as compared to 28GHz.” If it takes 1.44x to 1.66x more 39GHz spectrum than 28GHz spectrum to accomplish the same network goals, then 39GHz spectrum must only be 60-69% as valuable.<sup>4</sup> Bringing all these figures together below, we find that the gross value of Straight Path’s spectrum is, at best, \$260 million.

Straight Path Spectrum Portfolio: Gross Value Using Verizon/XO Pricing			
	MHz-pops (mm)	\$/MHz- pop	Value (\$mm)
28 GHz (A1 only)	46,464	\$0.0016	\$ 75
39 GHz	175,625	\$0.0011	184
Total			\$ 260

*Source: FCC filings, Kerrisdale analysis*  
*Note: 39 GHz is valued at 65% of 28 GHz (the midpoint of 60 and 69%, as derived from the AT&T analysis above).*

But we have yet to consider the sizable negative impact of Straight Path’s civil penalties. Under the terms of the [consent decree](#), Straight Path has three options:

- sell all of its spectrum within twelve months, pay 20% of the proceeds to the FCC, and pay an additional \$15 million;
- sell all of its spectrum more slowly, pay 20% of the proceeds to the FCC, and pay an additional \$100 million; or
- renounce its licenses within 12 months and pay \$15 million.

Complicating matters further, if Straight Path sells non-spectrum assets as part of a spectrum transaction, it may attribute \$50 million in value to those assets (“the Excluded Amount”), reducing the size of the 20% cut it owes the FCC.

Assuming Straight Path doesn’t simply renounce its licenses, we consider the first two scenarios below, generously giving the company full credit for the Excluded Amount (which wouldn’t apply in a straightforward spectrum sale). In any market, motivated sellers fetch lower prices for their assets, and Straight Path will be no different: any potential buyers will be well aware of the pressures facing the company, including the step-up in penalties associated with a delayed sale, and they will exploit their position of relative strength. Thus we assign a 20% price

<sup>3</sup> Alternatively, a simple rule of thumb suggests that spectrum value decreases as the square of the frequency (because of free-space path loss), implying that 39 GHz is  $(28/39)^2 = 51\%$  as valuable as 28 GHz, a result similar to what the AT&T analysis indicates.

<sup>4</sup>  $1/1.44 = 69\%$ ;  $1/1.66 = 60\%$ .

discount in the scenario in which Straight Path sells in the next twelve months. Nonetheless, based on the XO valuation, it still appears that a fast sale would be better for Straight Path than incurring the \$85 million penalty and holding out. In any event, though, Straight Path shareholders face massive value destruction, with ~70% downside from current prices.

Straight Path Spectrum Sale: FCC Penalty Scenarios		
	Fast sale	Slow sale
Gross spectrum value	\$ 260	\$ 260
20% duress discount	(52)	-
Net spectrum value	\$ 208	\$ 260
Upfront penalty	(15)	(15)
Additional penalty	-	(85)
FCC share of proceeds	(32)	(42)
Net company value	\$ 161	\$ 118
Per share	\$ 12.94	\$ 9.45
<b>Downside</b>	<b>(68)%</b>	<b>(77)%</b>

Source: Kerrisdale analysis

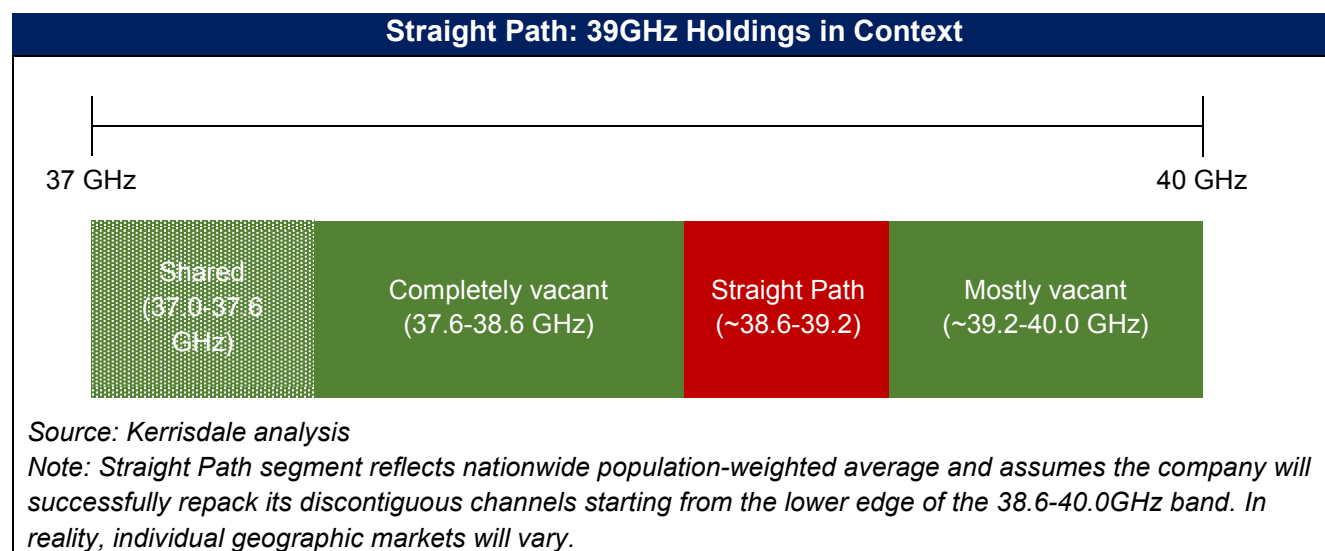
## II. Spectrum Like Straight Path's Is Abundant

Straight Path's management likes to depict the company's spectrum as a unique asset, offering any carrier a dominant position in the 39GHz band that will supposedly be a crucial part of mmWave 5G. Whether such technology will ever take off on a large scale remains an open question; in fact, recent writings by industry experts entitled [The 5G Myth: When Vision Decoupled from Reality](#) and ["5G Economics: An Introduction"](#) signal a broader reassessment of whether the benefits of 5G have been overhyped in light of its potentially staggering infrastructure and operating costs. Nevertheless, if we just assume more carriers are interested in acquiring mmWave spectrum for 5G, is Straight Path a particularly attractive option?

No. After being forced to give up 93 of its 39GHz licenses as part of the FCC consent decree, Straight Path's remaining 39GHz portfolio contains only 40% of the band's MHz-pops – leaving some 838 MHz (on a nationwide population-weighted basis) in the hands of others, primarily the FCC, which will ultimately auction off unused licenses. Even more importantly, these figures consider only the conventional 38.6-40GHz band, with 1.4 GHz of total bandwidth. However, in its July 2016 report and order, the FCC applied identical technical and licensing rules to the adjacent band from 37.6 to 38.6 GHz, supplying another 1,000 MHz of pure greenfield spectrum that will also be auctioned. Furthermore, the 37-37.6 GHz band just next door has also been authorized for mobile use, albeit on a shared basis with the Federal government, giving carriers interested in mmWave experimentation yet another low-cost alternative (once the sharing arrangement is further fleshed out). The diagram below summarizes the setup, making it clear



that multiple carriers will find it easy to acquire very large amounts of spectrum just like Straight Path's without having to engage with the company at all. No one is clamoring to scoop up Straight Path's particular holdings.



Indeed, while Straight Path tries to focus investor attention on just the 38.6-40GHz band in which it holds a plurality (though not a majority) of the MHz-pops, it's clear that other industry participants take a broader view. For instance, T-Mobile's 5G-related [experimental FCC license](#) covers the entire 37-40GHz band (as well as the 28GHz band) – not just Straight Path's piece. The same is true for [AT&T](#); meanwhile, the fixed-wireless startup [Starry](#) applied only to use the lower-frequency greenfield segments. In fact, FCC rules now mandate that devices operating anywhere from 37 to 40GHz must support the *entire* band, including the shared segment,<sup>5</sup> thereby ensuring that “incumbent” spectrum like Straight Path's has no special advantage. With so much highly similar supply in the pipeline and with major commercial mmWave deployments still years away, no buyer will be in a hurry to pay up for Straight Path.

In the months to come, the supply picture for Straight Path will only get worse. Under the FCC's Further Notice of Proposed Rulemaking regarding mmWave spectrum, the agency has already proposed to authorize mobile operations in additional bands containing some *18 GHz* of spectrum (~27x what Straight Path holds):

- The 24GHz band: 700 MHz
- The 32GHz band: 1,600 MHz
- The 42GHz band: 500 MHz
- The 47GHz band: 3,000 MHz
- The 50GHz band: 2,200 MHz
- The 70/80GHz bands: 10,000 MHz

<sup>5</sup> See Spectrum Frontiers [Report & Order](#), paragraph 323.

While different bands will have different idiosyncrasies, the overall direction of policy is clear: much, much more mmWave will be opened up for mobile use. In fact, in light of the current Republican FCC commissioners' avowed disappointment<sup>6</sup> that even more bands weren't opened up even faster, as well as the [Trump transition team](#)'s [distaste](#) for the warehousing of large chunks of spectrum by the Federal government, this trend toward increased commercial supply will likely accelerate. Verizon was not merely talking its book when it [said](#) the following in October:

It would be impossible for any firm to exclude a competitor by purchasing "too much" mmW spectrum because a large amount of mmW spectrum in the 5G pipeline will be released continuously for many years. So any competitor that fails to acquire spectrum necessary for its operations will have numerous future opportunities to correct its lack of spectrum.

For mmWave spectrum, then, the FCC has ensured that it's a buyer's market, not a seller's market, putting Straight Path in a dire position.

### III. Regulatory Risk Still Looms

Despite the high cost of Straight Path's FCC settlement, the company's shareholders have breathed a sigh of relief, glad that the regulator's sword no longer dangles over their heads. But, while the settlement did resolve the FCC's previous investigation, a careful reading of the underlying consent decree shows that risks still remain in the event that Straight Path drags out its spectrum sale. Consider paragraph 17 of the decree:

Enforcement of Part 101 Discontinuance of Service Rules. The Bureau agrees not to pursue an investigation of Straight Path for a violation of the discontinuance of service provisions contained in Sections 101.65 or 101.305 of the Rules regarding the License Portfolio for the period of time between the Effective Date and earliest of: (i) the closing date of the last transaction(s) to transfer or assigns the License Portfolio as specified in paragraph 16; (ii) the occurrence of an Event of Default as specified in paragraph 19; (iii) or twelve (12) months from the Effective Date, unless applications are pending with the Commission to transfer or assign the entirety of the License Portfolio as specified in paragraph 16.

The "discontinuance of service provisions" are rules mandating that any licensee who permanently discontinues wireless service thereby automatically forfeits its license and must notify the FCC. Straight Path has strenuously maintained that, when it told the FCC it provided "substantial service" using its spectrum as of the required buildout deadlines, it was telling the

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<sup>6</sup> See e.g. Commissioner [Pai](#) and Commissioner [O'Reilly](#)'s statements regarding the Spectrum Frontiers R&O.



truth – but, given that the company currently generates less than \$700,000 of annual revenue<sup>7</sup> from a nationwide spectrum portfolio and had to conduct its own investigation just to ascertain what equipment it still had deployed where, it's clear that, in any plain-English sense of the term, it doesn't provide "substantial service" anymore. The consent decree lets Straight Path off the hook, but only for a limited time. If twelve months elapse and Straight Path still hasn't sold its spectrum, the FCC reserves the right to re-initiate an investigation – and if it finds that Straight Path has permanently discontinued service with respect to any of its licenses, the company could simply lose them. This provision thus puts Straight Path under additional pressure to sell quickly; while the FCC might not *immediately* go after the company again, the prospect of catastrophic loss through regulatory action is not something to trifle with. Straight Path simply doesn't have the luxury of taking its time.

## IV. Indemnification May Not Help

During Straight Path's conference call last week, some questioners appeared to be confident that the company could force its former parent, IDT Corporation (from which it spun out in 2013), to bear the cost of the FCC settlement, under the theory that the wrongdoing that gave rise to the settlement took place prior the spinout. Though this idea sounds plausible, the reality is far less clear-cut. Under the [separation agreement](#) between IDT and Straight Path, Straight Path has sole responsibility for "SPCI [Straight Path Communications Inc.] Liabilities," which include

any and all Liabilities of IDT, SPCI, or any of their respective Affiliates, primarily relating to, arising out of or resulting from the operation or conduct of the SPCI Business or any other business, or the ownership or use of the Assets of SPCI, as conducted at any time on or after the Effective Time (including any Liability relating to, arising out of or resulting from any act or failure to act by any director, officer, employee, agent or representative of IDT, SPCI, or any of their respective Affiliates (whether or not such act or failure to act is or was within such Person's authority), in each case arising before the Effective Date...

While this passage is poorly drafted (and even suffers from unbalanced parentheses), it appears to say that Straight Path bears any liabilities flowing from the conduct of its business after the spinoff date, even when those liabilities can also be traced back to pre-spinoff actions. But there's a good case to be made that Straight Path's troubles with the FCC have at least as much to do with its own post-spinoff conduct as with anything that came before. While Sinclair Upton Research accused Straight Path of simply lying about its network buildout to retain its licenses, Straight Path itself consistently maintained that it told the truth, as the consent decree itself notes:

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<sup>7</sup> See FY2017 Q1 [10-Q](#) showing \$159k of quarterly revenue, entirely attributable to the Straight Path Spectrum segment.

In response to the preliminary investigation of Morgan Lewis following the investigation of a limited number of sites, Straight Path released a statement that “a significant amount of the equipment that had been installed in connection with the substantial service showings [was] no longer present at the original locations.” As part of the Morgan Lewis investigation, Straight Path reported that “[i]nterviews and contemporaneous documents consistently confirm that equipment was deployed at the original locations in connection with the substantial service applications, but the investigators concluded, based on the weight of the evidence, that the equipment was likely put in place for a short period of time at each location.” The Morgan Lewis investigation also determined that “the investigators did not find any evidence that the equipment used in connection with the substantial service applications is still present at the originally specified locations.” ... In its October 11 LOI Response, Straight Path argued that the prior substantial service filings made for the 39 GHz licenses held by Straight Path Spectrum, LLC had satisfied the substantial service rules, that the Commission had accepted the filings, and that the 39 GHz licenses are not subject to the discontinuance rules.

In other words, Straight Path and the law firm it engaged never backed away from the position that equipment really was installed to satisfy the buildout requirements; it’s just that it was only there “for a short period of time.” How short, and whether that period of time varied from location to location, has never been made clear. What the FCC felt it had sufficient evidence to conclude was not that Straight Path lied at the time of its “substantial service” showings (pre-spinout) but that it “had not actually deployed equipment with any permanency.” But did that failure to deploy “equipment with any permanency” take place before 2013, after 2013 – or, most likely, both?

Because the FCC’s concerns pertained not just to a discrete set of statements made in 2011 and 2012 but to an extended period of less-than-substantial service spanning the pre- and post-spinout periods, the question of who bears primary responsibility is inherently murky. Straight Path will argue that the failure was IDT’s, while IDT will argue that, by Straight Path’s own admission, the “substantial service” showings were truthful and it was Straight Path’s own fault that it did not maintain a level of performance acceptable to the FCC in 2013, 2014, 2015, and 2016. Because the underlying legal issues are genuinely uncertain, it’s naïve to expect IDT to simply hand over the money without putting up a fight, and it’s perfectly possible that Straight Path will walk away empty-handed and face the full brunt of the penalties on its own. Shareholders betting on a rapid and favorable resolution will likely be disappointed.

## V. Conclusion

Trading near its peak market cap despite a harsh regulatory crackdown and an onslaught of competing spectrum supply, Straight Path is highly overvalued. Simply using the Verizon/XO mmWave spectrum transaction as a benchmark implies a share-price decline of ~70% – and, given the weakness of the company’s position, it could easily be worse. The path has always been more crooked than straight, and now it’s coming to an end.

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