

Foggy Laws Hinder Wireless Traffic

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There is a lot more to Internet and cell phone service than a PC and a handset. Finding the connections is a rapidly developing industry worth billions of dollars internationally that is moving from landline to wireless.

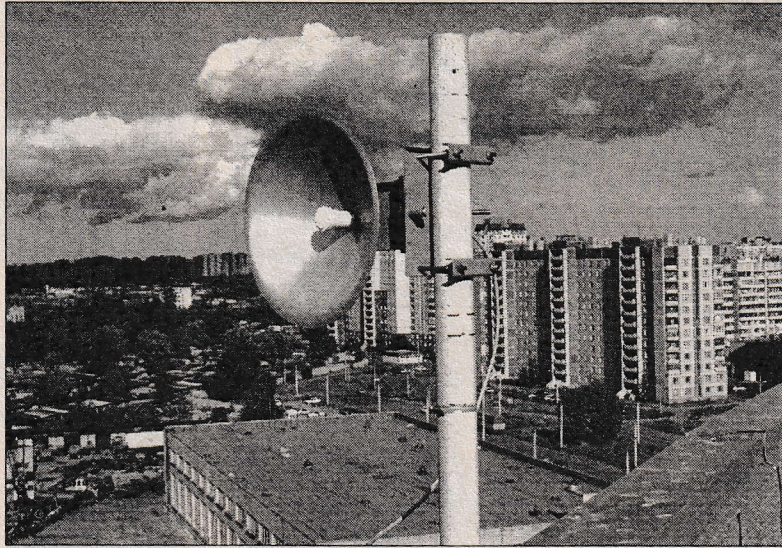
The St. Petersburg high-speed wireless data transmission market is shared by wireless optic and high frequency radio technology suppliers. Wireless optic does not require licenses. Radio does. The St. Petersburg market is largely dominated by wireless optic equipment manufacturer Katharsis.

The recently re-licensed millimeter-wave systems supplier Dok, hampered by Russia's outdated legislation, hopes the country will have no other choice but to follow the West and gradually ease licensing barriers on high radio frequencies. Dok believes it has the potential to play a major role in the development of rapid-deployment and low-cost mm-wave technology in Russia.

To bring new services such as 3G and WiFi to their customers, cellular and Internet providers need to build a new high-speed backbone for their networks, or high-bit links between cell site stations. Otherwise the existing network, designed for slow traffic, will not provide the quality of service required. There are only two ways to create a high-speed backbone today: via wireless optic, also called free space optic, or FSO, and via high frequency radio technologies, or millimeter-wave and radios.

Katharsis, an FSO equipment manufacturer with a head office in St. Petersburg, celebrated its thousandth shipment last week. The company is ranked among the world's top ten FSO suppliers, such as North-American companies Optica, LightPoint and PlainTree, head of marketing department at Katharsis Evgeny Vinogradov said. In wireless optic technology, laser or light-emitting diodes can be used to pass signals. Put simply, the operation of laser and light-emitting diodes can be compared to a laser pointer and a television remote control device, respectively.

The problem with using FSO is that light has difficulty passing through fog and city smog, guaranteeing transmission within no more than a couple of hundred meters in bad weather condi-



This mm-wave radio backhaul is identical to the one Dok supplied to CenterMedia.

tions, said Daniel Korneyev, general director of Dok.

"We know almost everything about fog, we have been in the market for almost 10 years," Vinogradov said. Deutsche Telecom, one of the world's leading telecommunication companies, guarantees 98 percent availability, he said. This means no or bad transmission for 180 hours per year. Katharsis guarantees 99.9 percent availability within a 1 kilometer radius year round, he said, which is only 9 hours a year of interference.

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Weather is not a problem for radio transmission, Korneyev said. The problem is legislation. Not only the technology supplier but also the operator buying the equipment need to have licenses for high frequency use. It took Dok, founded in 1993, six months to receive its new license, finally issued in January this year. Dok has only one licensed operator, CenterMedia. CenterMedia hopes to begin delivering the service to individual end users late this summer. The operator had a base station installed on the

roof of a twenty-two-story building on Vasilyevsky Island that also houses local pop radio station Radio Hit. Korneyev said that, so far, this is the only operating mm-wave band station in Russia.

Katharsis uses both laser and light-emitting diodes, supplying equipment sets directly to end users — mostly mobile service operators, system integrators and IT departments at large companies. In St. Petersburg, all major Russian cellular operators use the backbone provided by Katharsis.

Radio transmission is where the potential capital lies, and the United States even changed federal legislation to ease development in the sector, Korneyev said, referring to the Allocation and Service Rules for high frequency bands passed by the U.S. Federal Communications Commission in November of last year. The new rules brought licensing fees in the U.S. down to about \$100 and established regulations for conflict resolution. Neither the European Telecommunications Standards Institute, nor the Russian Ministry of Communications have simplified licensing rules for the 40.5 to 43.5 Ghz frequencies used for fast data transmission in the EU and Russia, respectively.

There used to be a demand for people-to-people communication, now there is a demand for connections among Ethernet-based computers, Korneyev said. The mobile phone operators are already planning to switch to In-

ternet Protocol, or IP, for their wireless backbone as the first step. The trend is witnessed by the rocketing number of new Gigabit Ethernet ports — about 20 million new ports per year, he said.

Both FSO and radio technologies can provide transmission at a speed of 100 Mbps. In radio technology, digital video broadcasting, or DVB-S, allows traffic at 2.6 Gb per second. The 100baseT interface, used in radio technology for 100-Mbps-per-second transmission, guarantees quality traffic within a radius of 3 kilometers. This is the system installed at Radio Hit. DVB-S has an all-weather guarantee within a radius of 7 kilometers.

"We are currently testing the mm-wave band service on a couple of business centers in St. Petersburg," CenterMedia's director Mikhail Levin said. The technology is constantly being developed, positioned as a multifunctional transmission service for stationary and portable computers, television and telephones, so it is difficult to estimate service rates as of yet, he added.

According to Vinogradov, Katharsis is concentrating on the domestic market, though the company has shipped to countries like Israel, the Czech Republic, Germany and Spain in the past. The company's equipment is ready to face the challenges of the demanding international market, Vinogradov said. Katharsis sells its equipment sets of up to 21 models for between \$1,500 and \$10,000. According to statistics gathered by Cisco, average prices on FSO in the world are much higher, ranging between \$25,000 and \$50,000. Dok, which has installed several stations abroad — in Slovenia and Latvia — is currently working on several more international projects, mainly targeting the United States.

Potentially most lucrative is a project involving design of next-generation 1.25Gbps radio links to be available on the market this summer. Korneyev expects demand for the new radio links to be the highest in the United States. Dok is selling mm-wave band equipment at cheaper rates than the average FSO rates in the world, Korneyev added.

"We are simply trying to be the Russian radio backbone shop, trying to make the equipment based on existing norms. But we are indeed a part of the same momentous movement as Cisco, IBM and Nokia," Korneyev said.