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Inside the Russian Short Wave Radio Enigma

By Peter Savodnik | September 27, 2011 | 12:00 pm | [Wired October 2011](#)

Somewhere in Russia a signal of mysterious beeps and buzzes has broadcast since the high-water days of the Cold War. But why?

Photo: Sergey Kozmin

From a lonely rusted tower in a forest north of Moscow, a mysterious shortwave radio station transmitted day and night. For at least the decade leading up to 1992, it broadcast almost nothing but beeps; after that, it switched to buzzes, generally between 21 and 34 per minute, each lasting roughly a second—a nasally foghorn blaring through a crackly ether. The signal was said to emanate from the grounds of a *voyenni gorodok* (mini military city) near the village of Povarovo, and very rarely, perhaps once every few weeks, the monotony was broken by a male voice reciting brief sequences of numbers and words, often strings of Russian names: “*Anna, Nikolai, Ivan, Tatyana, Roman.*” But the balance of the airtime was filled by a steady, almost maddening, series of inexplicable tones.

They don’t know just what they’re listening to. But they’re fascinated by the unending strangeness of the mindless, evil beeping.

The amplitude and pitch of the buzzing sometimes shifted, and the intervals between tones would fluctuate. Every hour, on the hour, the station would buzz twice, quickly. None of the upheavals that had enveloped Russia in the last decade of the cold war and the first two decades of the post-cold-war era—Mikhail Gorbachev, *perestroika*, the end of the Afghan war, the Soviet implosion, the end of price controls, Boris Yeltsin, the bombing of parliament, the first Chechen war, the oligarchs, the financial crisis, the second Chechen war, the rise of Putinism—had ever kept UVB-76, as the station's call sign ran, from its inscrutable purpose. During that time, its broadcast came to transfix a small cadre of shortwave radio enthusiasts, who tuned in and documented nearly every signal it transmitted. Although the Buzzer (as they nicknamed it) had always been an unknown quantity, it was also a reassuring constant, droning on with a dark, metronome-like regularity.

But on June 5, 2010, the buzzing ceased. No announcements, no explanations. Only silence.

The following day, the broadcast resumed as if nothing had happened. For the rest of June and July, UVB-76 behaved more or less as it always had. There were some short-lived perturbations—including bits of what sounded like Morse code—but nothing dramatic. In mid-August, the buzzing stopped again. It resumed, stopped again, started again.

Then on August 25, at 10:13 am, UVB-76 went entirely haywire. First there was silence, then a series of knocks and shuffles that made it sound like someone was in the room. Before this day, all the beeping, buzzing, codes, and numbers had hinted at an evil force hovering on the airwaves. Now it seemed as though the wizard were suddenly about to reveal himself. For the first week of September, transmission was interrupted frequently, usually with what sounded like recorded snippets of “Dance of the Little Swans” from Tchaikovsky's *Swan Lake*.

On the evening of September 7, something more dramatic—one listener even called it “existential”—transpired. At 8:48 pm Moscow time, a male voice issued a new call sign, “Mikhail Dmitri Zhenya Boris,” indicating that the station was now to be called MDZhB. This was followed by one of UVB-76's (or MDZhB's) typically nebulous messages: “04 979 D-R-E-N-D-O-U-T” followed by a longer series of numbers, then “T-R-E-N-E-R-S-K-I-Y” and yet more numbers.

Just a few years before, such a remarkable development on a shortwave station would have been noted by only a tiny group of hobbyists. But starting the previous June—after the first, mysterious outage—a feed of UVB-76 had been made available online (UVB-76.net), cobbled together by an Estonian tech entrepreneur named Andrus Aaslaid, who has been enthralled by shortwave radio since the first grade. “Shortwave was an early form of the Internet,” says Aaslaid, who goes by the nickname Laid. “You dial in, and you never know what you're going to listen to.” During one 24-hour period at the height of the Buzzer's freak-out in August 2010, more than 41,000 people listened to Aaslaid's feed; within months, tens of thousands, and then hundreds of thousands, were visiting from the US, Russia, Britain, the Czech Republic, Brazil, Japan, Croatia, and elsewhere. By opening up UVB-76 to an online audience, Aaslaid had managed to take shortwave radio—one of the most niche hobbies imaginable—and rejuvenate it for the 21st century.

Today, the Buzzer's fan base includes Kremlinologists, anarchists, hackers, installation artists, people who believe in extraterrestrials, a former Lithuanian minister of communications, and someone in Virginia who goes by the moniker Room641A, a reference to the alleged nerve center of a National Security Agency intercept facility at an AT & T office in San Francisco. (“I am interested in ‘listening’” Room641A tells me by email. “All forms of it.”) All of them are mesmerized by this bewildering signal—now mostly buzzing, once again. They can't help but ponder the significance of it, wondering about the purpose behind the pattern. No one knows for sure, which is both the worst and the best part of it.

As you might expect, the Buzzer's history is murky. Roughly 30 years ago, it's said, the Soviets built a radio station near Povarovo (the accent is on the second syllable), a 40-minute drive northwest of Moscow. At the time, Leonid Brezhnev was still alive, the Kremlin presided over an intercontinentalempire, and Soviet troops were battling the *mujahideen*. After the Soviet Union collapsed in 1991, it was revealed that Povarovo was controlled by the military, and that whatever happened there was top-secret.



Estonian tech entrepreneur Andrus Aaslaid runs an Internet relay for UVB-76 out of his attic office.
Photo: Alver Linnamägi

Shortwave radio aficionados developed various hypotheses about the role of the station in Russia's sprawling, military-communications network. It was a forgotten node, one theory ran, set up to serve some function now lost deep in the bureaucracy. It was a top-secret signal, others believed, that transmitted messages to Russian spies in foreign countries. More ominously, countered another theory, UVB-76 served as nothing less than the epicenter of the former Soviet Union's "Dead Hand" doomsday device, which had been programmed to launch a wave of nuclear missiles at the US in the event the Kremlin was flattened by a sneak attack. (The least sexy theory, which posited that the Buzzer was testing the thickness of the ionosphere, has never enjoyed much support.)

Before Aaslaid's Internet relay and the events of 2010, the dedicated trackers of UVB-76 probably numbered no more than a thousand. Some had been listening in their spare time since the 1980s, holed up in attics, garages, basements, and cluttered offices. Many spent their days working for large organizations—insurance companies, telecommunication conglomerates, militaries, universities. They lived in West Germany, Britain, the Netherlands, the US. Some hesitated to disclose their locations to fellow listeners; others used pseudonyms or handles. Before the fall of Communism, many of them actually believed they were in danger, assuming that they could be tracked (through technological methods that were never quite clear) by the same shadowy forces—KGB agents or radio engineers at the CIA or MI6 or Mossad—that controlled the stations they obsessed over. The listeners often thought they might have unearthed something top-secret, that there were files at foreign spy agencies with their names on them. They loved that they didn't know what they were listening to and were fascinated by the unending strangeness of this persistent, mindless, clandestine, evil beeping.

"It was thrilling" says Ary Boender, 57, a financial consultant who lives near Rotterdam, Netherlands. He first tuned in to UVB-76 in January 1983. He says he didn't mean to. He was looking for another station, rolling across the dial, and suddenly he heard the crackly, wispy *beep beep beep*. And stopped. This is how many fans talk about their discovery of the station: It was late, and they were looking for something else—a weather channel, a maritime report, some Air Force chatter—when all of a sudden UVB-76 broke through the ether and they were captivated, unable to stop listening to the haunting pulse that bleated through the cold and snowy dark all the way to their receivers. The question they all wanted answered was, what the hell is this? "The fun is and was to find out who they are and where they transmit from and what the purpose is," Boender says.

Before the Internet, shortwave fans knew of one another's existence largely through niche publications, whether photocopied newsletters like *Monitoring Times* or small-circulation magazines like *Popular Communications*. (Cover line on the October 1985 issue: "Eavesdropping on Aircraft Communications!") If something exciting happened on UVB-76—when there was an uptick in the duration of the beeps from, say, 1.9 to 2.2 seconds, or when the timbre of the beeping waxed or shifted, or when there was a rare pause in the transmission—fans would write in and speculate about possible meanings. They would clock the frequency of the beeping and listen for discrepancies or numbers or voices just beneath the veil of sound. They would ferret out other subscribers to the newsletters they received and other members of the shortwave radio associations they belonged to and share their findings.

Even today, listening to UVB-76 is like listening to a world that hasn't existed for decades. This feels especially true late at night when you're in a dark basement, headset on, enveloped by all the pops and whirs and snippets of anonymous voices from other signals seeping across the airwaves—"these little trips into fantasy," as Room641A puts it, that "happen when you are sitting in front of your receiver passing by Radio Havana at 3 in the morning."

Most observers believe that UVB-76 is an idiosyncratic example of what's called a numbers station, used to communicate encrypted messages to spies or other agents. Typically, these stations transmit numbers in groups of five, making it impossible to detect partitions between words and sentences. The numbers can be decoded using a key in the possession of the intended listener. Numbers stations are thought to have existed since World War I, as documented by the Conet Project, a compilation of recordings that was first released in 1997. (Director Cameron Crowe, a fan of the Conet Project, used samples from it in his 2001 film *Vanilla Sky*.) Drug runners are believed to have used numbers stations on occasion; so too are the North Koreans, the Americans, the Cubans, and the British. Indeed, shortwave hobbyists suspect MI6 was behind the most famous numbers station on the planet, the much-revered Lincolnshire Poacher.

An online group calling itself Enigma 2000 (the first part is an acronym for the European Numbers Information Gathering and Monitoring Association) collects data about numbers stations around the world. Jochen Schäfer, who heads the group's German branch, says of UVB-76, "It's no typical numbers station, but it is one." Usually, he says, numbers stations begin their transmissions with a call sign, then move on to a specially produced introduction—the Lincolnshire Poacher, for example, got its moniker because every broadcast kicked off with the first two bars of the English folk song with the same name—before they start broadcasting numbers. "This station is different because of its structure," Schäfer says. "Most of the time, there is just the buzzing tone... The messages come at irregular times."

But this anomalous format has prompted some UVB-76 listeners to suggest that it is not a numbers station at all. One former high-ranking European official and longtime student of Soviet jamming of Western radio stations, known to his fellow UVB-76 fans as "JM," maintains that the Buzzer's purpose is to transmit coded orders to military units within Russia, not to spies outside its borders. JM notes that most of what has been pieced together about the station's specs—its frequency of 4625 kHz, its main 20-kilowatt transmitter, its 5-kilowatt backup transmitter, and its horizontal-dipole antenna—points to conventional, military use. Bryan Tabares, a 21-year-old production engineer in Jacksonville, Florida, agrees and puts forward an even more innocuous theory to explain the disruptions of 2010: He believes it was merely "pink noise" manufactured by sound engineers to calibrate audio equipment. That's all. "Everything that's happened points to an equipment upgrade or calibration," Tabares says.



One of several abandoned structures near the radio tower in Povarovo.

Photo: Sergey Kozmin

Boender, the financial consultant near Rotterdam, says he is now confident that UVB-76 is controlled by the military. He bases this conclusion on his analysis of known Russian military stations. That type of sleuthing seems to be a large part of the appeal for him and other shortwave aficionados. He gives another example: “We discovered a Russian network in the early ’90s, but it took us a couple of years before we actually found out who they were. It appeared to be a network of Soviet embassies, consulates, ministries and most likely also the KGB and GRU [Russia’s largest foreign intelligence agency]. A number of people around the globe listened, and we exchanged messages and recordings and analyzed them until we finally discovered who they were.” He adds, “That’s what makes it fun.”

It took a 37-year-old computer engineer in Tallinn, Estonia, to drag UVB-76 into the Internet era. In the process, Andrus Aaslaid has expanded the station’s audience in a way that no devoted listener could have anticipated. Aaslaid’s office is the third-floor attic of a stonework building on a quiet street in the center of the Baltic city. From the kitchen in the attic, he can see, about 20 feet away, the apartment he shares with his family, which takes up the top floor of a former boardinghouse built in 1897. Though Aaslaid isn’t well known internationally, inside Estonia he’s something of a poster boy for the local tech scene, which has produced not only giants like Skype but a slew of rapidly growing startups. In the early ’90s, Aaslaid launched his first company, LaidWare, providing banks with ATM-networking systems. Then he ran a firm that was acquired by the quartet behind Skype. Then he did a stint in Silicon Valley. After that he served as an adviser to two Estonian economic-affairs and communications ministers, including Andrus Ansip, the country’s current prime minister. Like many entrepreneurs, Aaslaid has a frenetic quality, and he resists convention: He got married to the mother of his children in 2010, when his daughter was 6 and his son was 4. He has a hard time staying at a job for more than a year. He dropped out of university after two months. (“I was already working as a programmer,” he says. “We were the first wave to learn it hands-on. You didn’t need a degree.”)

Natalia never strays through the wrought-iron fence. On the other side is the radio tower, and no one, she says, ever goes there.

Aaslaid discovered shortwave radio as a young boy, and even today, when he talks about the UVB-76 Internet relay, he sounds a little like a teenager, fascinated by a world he does not quite understand. He turns on his receiver and we listen for a few minutes to random sound fragments: a peace activist talking about “rediscovering Hiroshima,” a Russian newscaster describing carnage in the Gaza Strip, the tail end of a song by Supertramp. “I’ve spent nights just randomly browsing and sometimes getting really, really drunk,” Aaslaid says. (His drink of choice is Aberlour A’bunadh, a single-malt Scotch.) “In the era of the Internet and corporations, people’s lives are so well planned and predictable,” he says. “In some ways, UVB-76 represents the good kind of unpredictability and mystery.”

Hooking up the relay was technologically simple but physically challenging. To make his antenna, he scrounged up 230 feet of copper-plated wire and in the middle of the night strung it between the roof of his office and the roof of his apartment building, going back and forth several times. Then he hooked up his shortwave scanner to his computer. To handle the streaming audio, he used a British service provider called MixStream. Several weeks later, he upgraded to a custom-built magnetic loop antenna and swapped out his scanner for a software-based radio.

Over the next six months, 200,000 listeners from scores of countries dropped in. Like any good shortwave junkie, Aaslaid watches the watchers—noting that, after the US, the number-two source of interest is Russia. Aaslaid says he’s received numerous email messages from artists and musicians who said the Buzzer had inspired them. X-Ray Press, a “math rock” band in Seattle, released an album this year called UVB-76, which features Buzzer-like buzzing in the background. Sherri Miller and Mario Fanone, two electronic musicians in Buffalo, New York, did them one better by naming their band UVB-76 and starting each live set with a brief sample of the Buzzer. Fanone plays a Casio digital guitar and a trumpet, while Miller generally plays a Korg Electribe, though sometimes she plays a vacuum cleaner, running its whoosh through an effects pedal to enhance its sound.

Aaslaid remains fascinated. “It has transmitted voice messages, it has been mute, its frequency has been hijacked by pirates, it has run through the maintenance with all the related voice messages and test runs, it’s had loads of strange noises, transmitted 24 hours with extremely high power all around the world,” writes Aaslaid, in a typically rapturous email about just what the station means to him. “Therefore I have fallen for it!” When I ask him why anyone cares about UVB-76, and why they *should* care about shortwave in general, he replies by invoking the universal connectivity that this primitive technology allows, even in places far from a cell tower. “Imagine somebody with a Morse key or a reel-to-reel tape deck in the middle of the Namibia desert, running a shortwave transmitter off a diesel generator and sending music or messages toward the ionosphere. In the middle of the night, it does not get any more spiritual than that.”

A new intrigue about UVB-76—or MDZhB—is the question of its location. Soon after the upheavals of August and September 2010, with all the stopping and starting and knocking and whispering, shortwave listeners reported another remarkable shift: The station’s position seemed to have moved. JM, the former European official, has since helped trace its rough location to near the town of Pskov, close to Russia’s border with Estonia. But no one has been able to triangulate exactly where the broadcast is coming from. Ary Boender theorizes that the move was related to a Russian military reorganization that took place that September, when the Moscow and Leningrad military districts were merged to form a new command center in St. Petersburg—which would explain why UVB-76, too, might have migrated hundreds of miles northwest. For the foreseeable future, though, the site of the transmitter has been added to the long list of its enduring mysteries.

Today, the mini military city in Povarovo, from which the cipher broadcast for so many decades, is nearly abandoned. The surrounding village is a gray-brown tapestry of Communist apartment buildings, recently built dachas, and babushkas hawking honey and cucumbers. Around the *voyenni gorodok*, there are gates and walls and signs—military vehicles only—but no guards or electrified fences, and the gates are not locked. The only activity is near the housing blocks filled with the wives and children and grandchildren of Soviet veterans, living and dead. “This was like paradise,” says one resident, Natalia, whose late husband, Sergey Nikolayevich, served as driver to the commander of the *voyenni gorodok*. When asked about the looming wrought-iron fence roughly a hundred feet from the entrance to her apartment building, she says she never strays through its gates. On the other side is the radio tower, and no one, according to Natalia, ever goes there.

The one-lane road that leads to the tower stretches about a quarter mile past a handful of empty buildings and a thick pine forest. A chain-link fence, supported by stone posts capped with moss, surrounds the tower. Between 100 and 150 feet tall, it’s red and white and rusting, with three or four satellite dishes attached to it. Next to the tower are a blue shed, a green metal hut stuffed with wires and electrical equipment, and an ancient stone structure that’s also overgrown with moss. And there appears to be a large underground facility: The muddy pitch on which the tower stands is riddled with metal cylinders (presumably ventilation shafts) rising out of the ground, and there is a very small pink building that looks like the entrance to

a descending staircase. Also, there's a door that's partially ajar on the side of the stone structure. If you open it and peer inside, you'll see a black hole where there must have been a ladder several years or decades ago, and if you drop a rock in this hole, it will take about a second to reach the bottom—whatever is down there is at least 32 feet belowground.

Just beyond the chain-link fence and the radio tower is another building, which is one story and also pink. There is a large antenna outside, and a tree, and a barking mutt leashed to a cable that's strung from the tree to the building. The setup is such that if you were to approach the front door, you would enter the jurisdiction, so to speak, of the dog, which barks endlessly and ferociously, as if he has been beaten.

The front door appears to be locked. There is no light on inside; no one comes in or out. But someone has been here. The dog, after all, must be fed.

Peter Savodnik (petersavodnik.com) is a freelance journalist and the author of a forthcoming book, The Interloper, about Lee Harvey Oswald's time in Soviet Russia.

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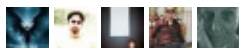
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Vladimir Kovic

4, 8, 15, 16, 23, 42 :)

[2 days ago](#) [22 Likes](#)

[Like](#) [Reply](#)



BeanSoupMagyar

Did the goat not even struggle?

[2 days ago](#) [in reply to Vladimir Kovic](#) [1 Like](#)

[Like](#) [Reply](#)



Mark E

Many years ago I worked in signal intelligence collection in the US Navy and for 18 months, my "target" was Soviet Pacific Fleet. This has all the hallmarks of what we called "illici" traffic - transmissions to intelligence agents working overseas. The tones are channel or frequency markers, to make it easier for the agents to tune the channel. The traffic itself uses a mixture of Russian phonetic letters and numbers. The way they say the numbers is a clue. Russians have both cardinal and ordinal methods of counting. Russian military uses ordinal in radio communications (like we might say "fiver" for 5). So (and forgive the incorrect phonetics here) "odin" would be "1" in cardinal use and "odinitnya" would be "1" in ordinal use. If you listen to the recordings, all the numbers are read using ordinals.

Why use shortwave in the age of internet and mobile phones and sat-phones? Not every place where the Russians have intelligence agents will have reliable internet and cell phone comms. In other cases, simply having a satellite phone would be incriminating. Plus, shortwave will get through when much else won't.

[1 day ago](#) [7 Likes](#)

[Like](#) [Reply](#)



Mark Brown

No such thing as "fiver" in US military. It is spoken as "five". However 9 is spoken as "niner" Thought I would clarify that. Mark B. Communication Intelligence Specialist USN

[23 hours ago](#) [in reply to Mark E](#) [1 Like](#)

[Like](#) [Reply](#)



jp

Five is spoken as "fife" not five over the radio.

[38 minutes ago](#) [in reply to Mark Brown](#)

[Like](#) [Reply](#)



drocpsu

Great article. I love when Wired reports on this kind of stuff. Someone should drop a ladder down the hole and explore the underground system.

[2 days ago](#) [14 Likes](#)

[Like](#) [Reply](#)



Sevy_Verna

I translated it-it says:
Toynbee idea
In Kubrick's 2001
Resurrect dead
On Planet Jupiter

[2 days ago](#) [8 Likes](#)

[Like](#) [Reply](#)



Diego Browne

This is good journalism... it was a joy to read.

[6 days ago](#) [26 Likes](#)

[Like](#) [Reply](#)



Jeffery

This comment was flagged for review.

[2 days ago](#) [in reply to Diego Browne](#)

[Like](#) [Reply](#)



wiredog

Does she take her clothes off for the webcam?

[2 days ago](#) [in reply to Jeffery](#) [3 Likes](#)

[Like](#) [Reply](#)



Security Generation

I was interviewed for this article many months back, nice to see it was finally published.

Here are a few posts on my site for those who are interested:

<http://www.securitygenerator....>

<http://www.securitygenerator....>

<http://www.securitygenerator....>

[1 day ago](#) [5 Likes](#)

[Like](#) [Reply](#)



BillC

the dog is inadvertently fed by (with) foreign short wave researchers

[2 days ago](#) [5 Likes](#)

[Like](#) [Reply](#)



Paul Weber

Two words: Dharma Project!!!

[2 days ago](#) [5 Likes](#)

[Like](#) [Reply](#)



Mike Greco

Legit Cold War mysteries like this are always awesome.

[2 days ago](#) [4 Likes](#)

[Like](#) [Reply](#)



odhinn178

I know everyone loves the air of mystery that surrounds this transmitter, but surely it would be fairly easy to triangulate the location using multiple receivers. So many people are picking this up right now, and could probably crowdsource the location.

In addition, some amount of demodulation and decoding could be done on the signal. There are only so many ways a transmitted signal can be encoded and modulated. FSK, OOK, PSK, AM, FM, OFDM, PWM, PCM, etc. It certainly sounds like modulated signals I've heard before.

I'm sure once you get to the heart of it, the message being encoded is also encrypted, but any amount of reasonable signal processing will at least get you to that point. No one cares to attempt to deconstruct this signal? A couple of weeks of sampling and a couple of weeks of MATLAB for anyone that knows how to use it, could probably glean some additional information.

[2 days ago](#) [4 Likes](#)

[Like](#) [Reply](#)



Shawn McCarthy

To your first point: the last half page of the article is about walking right up to the original site.

To your second: I'm sure nobody's thought of that yet, certainly not the ham radio junkies and least likely of all, the thousands of people who started tuning in after the story went mainstream.

[1 day ago](#) [in reply to odhinn178](#) [5 Likes](#)

[Like](#) [Reply](#)



joe stecher

The hole is 16 ft deep, not 32. $x = 1/2 * a * t^2$ $a = 32 \text{ ft/s}^2$

[2 days ago](#) [4 Likes](#)

[Like](#) [Reply](#)



McGhee

How long is about a second?

[2 days ago](#) [in reply to joe stecher](#) [3 Likes](#)

[Like](#) [Reply](#)



Priyom.org

Hey SW fans, I was interviewed for this article about a year ago, several months after the UVB-76 freeforums (Several members of which are featured in this article) community decided to move on and create a website dedicated to UVB-76 and the buzzer. We now have collected over 200 messages and recordings from UVB-76, so come and check out the work we have done since: <http://priyom.org> and the UVB-76 page itself: <http://priyom.org/number-stati..> We now have several online streams working in cooperation with Laid (Andrus Aaslaid) So you can hear the buzzer and other known scheduled stations very much grown from the community featured in the above article.

[5 days ago](#) [7 Likes](#)

[Like](#) [Reply](#)



BeanSoupMagyar

For those of us with the key:

“04 979 D-R-E-N-D-O-U-T”

That's actually quite a funny joke.

[2 days ago](#) [2 Likes](#)

[Like](#) [Reply](#)



kludge

Triangulation of HF sources is actually not trivial, because what you're hearing at your receiver at a distance is all skywave, and as you get close you're getting a mixture of ground wave and skywave. So it's possible to tell the source has moved, but it takes boots on the ground with a loop antenna to figure out exactly where it's moved to. There are also some tricks available that can nearly eliminate groundwave and make location a lot harder.

The best theory that I have heard about the buzzer was in a discussion twenty years ago on Usenet. The normal operation is clearly a microphone placed near a mechanical device; sometimes external noise and voices can be heard in the background which would not be the case with a calibration signal. Consequently, it is apt to be a signal that some piece of equipment continues to be operating. That is, rather than be like a numbers station and send information out from headquarters to agents in the field, it is probably at a field site and sending a message to headquarters verifying that the field site is continuing to operate

[1 day ago](#) [1 Like](#)

[Like](#) [Reply](#)



odhinn178

Surely the ground wave signals have experienced polarity changes? Using what we know about phasing and multipath, we should be able to figure it out. The measurements might take longer, and the distances between receivers would need to be calibrated. Some techniques come to mind immediately, such as PCA or ICA. It would be easy to align them temporally since they are periodic, the difficulty might come with ergodicity, stationarity, and correlator.

[1 day ago](#) [in reply to kludge](#)

[Like](#) [Reply](#)



kludge

To some extent, yes. The problem is that you cannot readily distinguish the clean groundwave from the skywave which has undergone Faraday rotation, etc.

It's not an impossible problem, it's just a more difficult problem, and it's one that requires receiver positions relatively close to the source to minimize some of the errors.

[1 day ago](#) [in reply to odhinn178](#) [1 Like](#)

[Like](#) [Reply](#)



crunchy2k

This posting on EnglishRussiaDOTcom/2010/08/28/inside-the-mysterious-uvb-76-station/#more-17313 dated August 28, 2010, claims those are pictures of the inside of UVB-76. A poster to that story said these are the 56°4'59.59"N 37°6'37.01"E coordinates. It's in the NW corner of the M10/E105 and A107 intersection in the Ukraine, very close to Estonia.

[1 day ago](#) [1 Like](#)

[Like](#) [Reply](#)

**Isa Rochin**

Here's a theory: It's a red herring

[2 days ago](#) [1 Like](#)

[Like](#) [Reply](#)

**ReginaldMerryweather**

I spent many hours listening to this and have no idea what it was at all. To my ears, it sounded like the many 'test signals' that I used to broadcast using the phrase 'AND 50'

[2 days ago](#) [1 Like](#)

[Like](#) [Reply](#)

**Wilson Gray**

"voyenni gorodok (mini military city)" Wouldn't "fort," in the modern American military sense, be a better translation? Cf. Fort Leonard Wood, Missouri; Fort Riley, Kansas; Fort Sheridan, Illinois; etc. If not, then, "military mini-city."

[2 days ago](#) [1 Like](#)

[Like](#) [Reply](#)

**Alex**

Actually, it is correct translation - russian military cities are way different that american army bases...

[17 hours ago](#) [in reply to Wilson Gray](#)

[Like](#) [Reply](#)

**lazeight**

True to an extent. But since it's a translation, the translator probably used the *actual* translation from the Russian, and not an idiom. For all I know, the Russian military may actually use a 'fort' designation for a smaller base than a military mini-city.

[2 days ago](#) [in reply to Wilson Gray](#)

[Like](#) [Reply](#)

**Alex**

N

[17 hours ago](#) [in reply to lazyeight](#)

[Like](#) [Reply](#)

**Luis Andrade**

Interesting. This information was used by the writers of "Fringe" in an episode last year or the year before. Obviously, they didn't get it from Wired.

Cool article.

[2 days ago](#) [1 Like](#)

[Like](#) [Reply](#)

**Mike Chace-Ortiz**

Unfortunately, the article and the writer appear to have missed one crucial piece, namely to have taken a receiver to the suspected site to confirm the location. The tower in the picture looks impressive enough but it doesn't look like it contains any antenna for a station transmitting on 4MHz. So, the mystery continues until someone can actually stand next to the antenna with a radio and definitively prove the location.

[2 days ago](#) [1 Like](#)

[Like](#) [Reply](#)

**Alain Schneider**

As I understood it, the signal has moved, and the location in Povarovo is no longer transmitting, so bringing a radio would not have served anything.

[2 days ago](#) [in reply to Mike Chace-Ortiz](#) [2 Likes](#)

[Like](#) [Reply](#)

**Mike Chace-Ortiz**

Huh? Well, if he had taken a radio, at least the writer could have confirmed that this is no longer the location and this was therefore (possibly) the former antenna used to send the signal! Everyone told me that the Naval radio station in Cutler, Maine was defunct, until I actually took a radio up there, to prove it wasn't!

[1 day ago](#) [in reply to Alain Schneider](#)

[Like](#) [Reply](#)

**Mark Brown**

I can verify your info on Cutler.

[23 hours ago](#) [in reply to Mike Chace-Ortiz](#)

[Like](#) [Reply](#)

**Mark E**

It doesn't really take that much of an antenna. In the picture, the angle is so steep that we can't see if there is a tall monopole antenna at the top of the tower. Or it could be a long-wire antenna. We normally used a 30 foot monopole for our shipboard HF receivers. They could also be pressed into service as transmitter antennas if we had needed them.

[1 day ago](#) [in reply to Mike Chace-Ortiz](#)

[Like](#) [Reply](#)



E H

A spooky Russian site like that would obviously use a Baba-Yagi antenna.

[2 hours ago](#) [in reply to Mark E](#)

[Like](#) [Reply](#)



Kevin Elliott, Technology Entrepreneur, Small Business Author, IT Manager, Software Engineer, Wino, Foodie, Cheesie, Father

The Buzzer is definitely one of the classic shortwave radio enigmas. It would be very interesting if someone were to continue to monitor the physical location and keep us posted, because like the author mentioned, someone has to feed the dog. Who is it?

[1 week ago](#) [3 Likes](#)

[Like](#) [Reply](#)



zoddd

Cool! I've been interested in Numbers Stations for awhile now, they are a truly interesting thing. If anyone else is interested, I recommend checking out the Conet Project, which was mentioned in this article. It has a large collection of recordings from other numbers stations, and I believe some letter beacons too.

[1 week ago](#) [1 Like](#)

[Like](#) [Reply](#)



Zachary Bases

Read "On the beach" by Neville Shute, its probably a similar situation...

Or if you want to be lazy about it read the plot summary.

<http://en.wikipedia.org/wiki/O...>

Skip down to the paragraph starting with

"The submarine travels to the Gulf of Alaska in the northern Pacific Ocean,"

It is a good book, very sad though.

[14 hours ago](#)

[Like](#) [Reply](#)

**psychros**

I knew about the Woodpecker but I'd barely heard this mentioned before, and never in detail. Kind of amazed it was barely known before the Estonian guy put it online - the Buzzer seems a lot more intriguing.

[22 hours ago](#)[Like](#) [Reply](#)**Ramzan**

We shall break the two-headed eagles neck

[1 day ago](#)[Like](#) [Reply](#)**DakVoo**

That makes a whole lot of sense dude, I miss the days of Radio Moscow!

real-privacy.int.tc[1 day ago](#)[Like](#) [Reply](#)**Faxoned**

There is another Russian station of note. The Woodpecker. This one, presumably, is an over the horizon radar installation that disrupts the 40 Meter Amateur Radio band.

[2 days ago](#)[Like](#) [Reply](#)**neko**

The cool thing is the radar array was so huge, they built Chernobyl to power it.

<http://en.wikipedia.org/wiki/R...>[2 days ago](#) [in reply to Faxoned](#) [1 Like](#)[Like](#) [Reply](#)**Faxoned**

I guess they did. The dipole array is amazing. If I didn't hate the word, I would say it is "awesome". But that word is so overused to be meaningless. But it would describe it.

[2 days ago](#) [in reply to neko](#)

[Like](#) [Reply](#)



fjodor müller

in germany the use the word ``madness`` to describe it .ellipticallyused for It's [madness.an](#) in a deeper sense it is in any sense amazing .if you consider the effort then its only stupid aint it?

[1 day ago](#) [in reply to Faxoned](#) [1 Like](#)

[Like](#) [Reply](#)



haryadi Be

another scenario?

[2 days ago](#)

[Like](#) [Reply](#)



atimoshenko

Surely in the second decade of the 21st Century no one really uses shortwave radio anymore for matters significant to national security? It would be like using carrier pigeons in the 1940s...

[2 days ago](#)

[Like](#) [Reply](#)



Faxoned

Radio does not rely on an infrastructure. Good luck with your satellites, Internet, and cell phones in a real war. Google KX1 Elecraft. I have built transceivers the size of altoids tins, powered by AA batteries, that can operate effectively over thousands of miles using CW. Try that with your text messaging on a stand alone system. Two QRP (a few watts) radios will still form a link after any kind of solar, nuclear, or political event. As long as there is an atmosphere, a radio can communicate if the operator has any skills.

[2 days ago](#) [in reply to atimoshenko](#) [17 Likes](#)

[Like](#) [Reply](#)



Faxoned

That being said, radio is subject to the quirks of propagation, which depends on the characteristics of the various layers of the atmosphere at any given time. Radio propagation varies with time of day, (sunlight) and flux layers, among other things. Some days the bands are "dead", relatively. High noise levels also. Depends on the frequency used. Amateurs can utilize many HF frequency bands, basically from 160 Meters up to 10 Meters on a reliable basis. Not to mention the higher VHF, UHF and

Microwave frequencies. Reliably, hams use 20 meters for night and day world wide communications, and 40 or 80 for daytime. However, all bands work at various times from day to day.

[2 days ago](#) [in reply to Faxoned](#) [2 Likes](#)

[Like](#) [Reply](#)



Andrew McKinney

Well said. With the right equipment and a little practice you can have good communications. there is always an opening somewhere. I remember back in the 70's as a teenager with my old Zenith tube SW receiver listening to the "numbers". I too miss radio moscow. Now it's "Voice of Russia".

[1 day ago](#) [in reply to Faxoned](#)

[Like](#) [Reply](#)



LoudRambler

Why not? It's the one channel that is next to impossible to jam completely and that requires little or no interference.

The more complex the technology is, the easier it is (in general) to kill completely if getting rid of it is needed.

[2 days ago](#) [in reply to atimoshenko](#) [6 Likes](#)

[Like](#) [Reply](#)



wiredog

When allied troops landed in Normandy they brought carrier pigeons with them.

[2 days ago](#) [in reply to atimoshenko](#) [6 Likes](#)

[Like](#) [Reply](#)



Tudor Rosca

Most of WW2 took place after 1940 and carrier pigeons played a CRUCIAL role in the allied intelligence effort. They were so important that the Gestapo created a "Hawk" unit to hunt down pigeons on the french coast.

[2 days ago](#) [in reply to wiredog](#) [7 Likes](#)

[Like](#) [Reply](#)



TomRoberts

You beat me to it. Was gonna mention that too. ;)

[1 day ago](#) [in reply to wiredog](#) [1 Like](#)

[Like](#) [Reply](#)

**TomRoberts**

You obviously do not work 'in matters significant to national security'. Your analogy is way off, too. You've got it backwards, in fact. Radio propagation can far outreach any internet WiFi system. And any 'wired' system, such as your usual internet connection, whether WiFi or not, has to eventually hook to a wired server pipeline, well, that's even easier to outdo - just cut the juice.

Radio is self supporting, requires very little power output (a measly 5 watts can easily traverse continents), and is highly mobile.

[1 day ago](#) [in reply to atimoshenko](#) [1 Like](#)

[Like](#) [Reply](#)

**tdave1234**

I've asked this question of some friends who are interested in this sort of thing. Shortwave radio is still an effective and inexpensive way to communicate with "operatives" in the large areas of the world where the locals still use SW for day to day news and info. Get caught with a satellite phone in the heart of Africa and you've got some 'splainen to do ...

[2 days ago](#) [in reply to atimoshenko](#) [1 Like](#)

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