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SPIES AND NUMBERS, HERE TO STAY

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Abstract Numbers stations are mysterious shortwave radio stations, broadcasting streams of numbers or letters using the phonetic alphabet, by voice or Morse signals. Although the source of these broadcasts is unknown, there is no doubt that they are used by government agencies to send encrypted messages to secret agents in covert operations.

Keywords Numbers Stations, One-time Pad, Espionage, Atencion Station, Ministerium fur Staatssicherheit (Stasi), Bundesnachrichtendienst (BND), Dirección General de Inteligencia (DGI), Vaclav Jelinek, Ana Belen Montes, Walter Kendall Myers

Numbers in the Air

Most of these numbers stations use a basic format to send the streams of numbers or letters. Some stations broadcast each day fixed times, and disappear after a few days or weeks, others have irregular time schedules and appear and disappear over time. The messages are broadcasted on very powerful shortwave transmitters with frequencies ranging from 3,000 to 30,000 KHz and are received all over the world.

The numbers or letters are spoken in many different languages, usually a female voice, but sometimes male or those of children. Many of the broadcasts use mysterious mechanically or electronically generated voices. The messages are usually groups of five numbers or letters and are typically repeated by reading each group twice or repeating the entire message. Introduction signals are used as a beacon, prior to the transmitting of the message. These are repeating phrases or musical or electronic sounds, enabling the receiver to adjust his radio to the desired frequency.

Radio amateurs monitor these broadcasts and they sometimes give nicknames to stations, according to the introduction phrase (e.g. DFD21 or the Cuban “Atencion” station) or the prelude music (e.g. Swedish rhapsody)[1]. Some stations are called counting stations, because of their introduction signal. An example is the Cuban “Atencion 1234567890”.

There were more numbers stations in the period of the Cold War. Many of the broadcasts came from the Eastern-block countries, Cuba and South-America. After the fall of the Berlin Wall the number of stations significantly decreased from countries like East-Germany, Yugoslavia, or Hungary. Most of these voices were Russian or German. However, there are still numbers stations active in the former Soviet-Union, Europe and even North and South America, and new stations continue to appear.

Evidence for Use as Spy Stations

Numbers stations provide a secure way to communicate with secret agents in the field and the letters or numbers are encrypted messages. These stations are unlicensed high power HF transmitters, broadcasting worldwide in various formats and languages. They do this day and night on a wide range of frequencies and it's been going on for decades. No single private, commercial or government agency has ever stepped forward to simply explain these transmissions. However, the costs and organisation of such large-scale illegal broadcasts can only be supported or approved by government agencies.

It's publicly known that embassies and intelligence services of many countries have large shortwave antenna parks. Although no government or legal broadcaster has acknowledged the existence of numbers stations or admitted any involvement with these stations, there is enough evidence that shows clearly that these stations are indeed used by intelligence services to transmit secret messages.

The content and structure of the messages are identical to cryptographically encrypted messages. The groups appear to be totally random and without any logical order or meaning. It is assumed that a one-time pad encryption is used.[2] One-time pad is a system where the message is encrypted with a unique key. The key is used only once and has the same length as the message. One-time pad is the only system to have been proven mathematically unbreakable if properly used. Secret agents can carry a large number of one-time pad keys, in small booklets or microfilm and although the one-time-pad method is slow and elaborate, it requires only pencil and paper to decipher a message.

Documents of the East German Ministerium fur Staatssicherheit, the Stasi, describe in detail intercepted packets, destined for German CIA agents that lived in the former GDR, with one-time pads, instructions on how to receive numbers messages on shortwave radio and the deciphering procedures for these messages.[3]

Michael Michnowski defected together with Stasi agent Werner Stiller from East Germany in 1979. He published his story about the preparations and the defection. In that story he describes the covert communications with the Bundesnachrichtendienst, West-German intelligence, and how they used a shortwave radio to receive one-time pad encrypted instructions, sent by BND numbers stations.[4]

Spies have been caught in possession of shortwave radios and one-time pads, and some of these cases are well documented in court indictments and historical papers. In 1988 Vaclav Jelinek, a Czech StB (State Security) spy who operated under the false identity of Erwin van Haarlem, was arrested by British Special Branch detectives while receiving a numbers message on a shortwave radio in his London apartment. One-time pads were found on microfilm and hidden in bars of

soap. The pads enabled the detectives to decipher some of the received messages, which were later used in court. Jelinek was sentenced to ten years of imprisonment.[5]

More recently, there were several spy cases in the United States, related to Cuban numbers stations. In 1998, the so-called Cuban Five from the Wasp Network spy ring, agents of the Cuban DGI (Dirección General de Inteligencia), received instructions by encrypted messages that were sent each day by the Cuban HF numbers station “Atencion”.[6]

Another example is the Ana Belen Montes case, a senior US Defence Intelligence Agency analyst, spying for Cuba. She was arrested in 2001 and the federal prosecutors stated: “Montes communicated with the Cuban Intelligence Service through encrypted messages and received her instructions through encrypted shortwave transmissions from Cuba”.[7]

In 2006, Carlos and Elsa Alvarez were charged with espionage and acting as agents for Cuba. The US District Court Florida stated: "Defendants would receive assignments via shortwave radio transmissions. These messages were encoded in five-digit groupings. Once received, Defendants would input these coded messages into their home computer, which was equipped with decryption technology contained on a diskette."[8]

US State Department official Walter Kendall Myers and his wife Gwendolyn Steingraber Myers were arrested in 2009 on charges of serving as illegal agents of the Cuban government for nearly 30 years. They acknowledged having received encrypted messages from the Cuban Intelligence via a shortwave radio they possessed. The Columbia State District Court indictment stated that “Cuban intelligence broadcasts encrypted shortwave radio messages in Morse code or by a voice reading numbers" and also that "It was part of the conspiracy that Cuban Intelligence would and did broadcast shortwave messages in Morse code which were receive by Kendall Myers”.[9]

Why Numbers Stations

The method of broadcasting has many advantages to intelligence services. Shortwave transmitters reflect their signal many times between the earth surface and the ionosphere, carrying them over very long distances. This enables them to send messages to agents located far away in foreign countries. Because of the many reflections of shortwave signals it is much harder to locate the transmitter.

Since it is impossible to find out who is sending the message, and because it's unknown who receives the message, it is an ideal way to communicate in a secure way with secret agents without taking any risks. The agent doesn't need any special equipment to receive or decipher a message since anyone with a simple commercial shortwave world-receiver can pick up these messages and decipher them with pencil and paper. This avoids being caught with compromising communications equipment.

Are numbers stations still useful in this age of global communications, Internet and satellite links? Yes! All modern communication systems are controlled by computers. Telephone, Internet and even satellite transmissions can be monitored. E-mails can be intercepted and read. Government agencies have the money and resources to monitor communications and trace sender and receiver. An example is the huge ECHELON[10] project which globally intercepts all kinds of communications.

In times of conflict, countries can simply block all Internet or other data traffic, or even simply switch off satellites. Also, there have been several successful test to destroy satellites with missiles. Or did you really believe you could continue to telephone or chat over the Internet during a serious conflict between, let's say, Russia and the United States? Imagine a war broke out and intelligence personnel are operating behind enemy lines. The only way to communicate with them would be the good old-fashioned long distance shortwave radio. And most important, no one can tell who is receiving these broadcastings.

But even in times of peace some covert operations are so sensitive that discovering them would bring governments or countries big problems. It is believed that some numbers stations continuously send fake messages, just to keep the lines active, ready for use when required. Those who monitor these stations are unable to notice when a station suddenly starts sending operational coded traffic instead of random garbage.

And still, every day, numbers messages are transmitted all over the world, spoken in English, Russian, Spanish, Chinese and many other languages. Who's listening to them?

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[1] SpyNumbers Database: http://www.spynumbers.com/numbersDB
[2] Cipher Machines and Cryptology: https://www.ciphermachinesandcryptology.com/en/onetimepad.htm
[3] SASundChiffrierdienst: http://scz.bplaced.net/m.html#cia
[4] Michael Michnowski, My Spy Story: http://www.myspystory.com/chap6.html (Internet Archived)
[5] Simon Mason, Secret Signals: http://www.signalshed.com/docs/Secret_Signals.pdf
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[7] FBI affidavit on arrest Ana Belen Montes: http://cryptome.org/montes/montes092101.pdf
Ana Belen Montes on CI Centre: http://cicentre.com/Documents/DOC_Montes_1.htm
[8] US District Court - Southern District of Florida, United States vs Carlos Alvarez and Elsa Alvarez
[9] US Department of Justice on the Myers case: http://www.usdoj.gov/opa/pr/2009/June/09-nsd-554.html
Columbia District Court Indictment and FBI affidavits Myers case: http://cryptome.org/myers/myers-spy-docs.zip
[10] Nicky Hager – Secret Power: http://www.nickyhager.info/ebook-of-secret-power/