# Unveiling FSB's 16th Center SIGINT Capabilities

# OSINT & Phaleristics: Unveiling FSB's 16th Center SIGINT Capabilities



Special thanks to all reviewers of this report for their feedback and support.
Published in **July 2025** under the **CC BY-SA licence**.

# Executive Summary

For over a year, we have collected and analyzed hundreds of photographs of military insignia linked to the 16th Center of the FSB, which inherited the primary signals intelligence[1] (SIGINT) capabilities from the Soviet KGB. The Center is publicly accused of using these capabilities to intercept communications both abroad and within Russia, as well as to carry out cyberattacks against government and diplomatic institutions, NGOs and private companies worldwide.

By analyzing identifiable information displayed on these insignia—key symbols, units' creation date, internal naming conventions, maps, etc.—we were able to:

1. get insights into the history of the 16th Center;
2. piece together part of its internal structure;
3. and geolocate several of its interception centers within Russia.

Our findings confirm that the 16th Center inherited capabilities developed by the Soviet KGB that were restructured after the FSB absorbed a significant part of Russia's first electromagnetic intelligence agency (FAPSI), which was dissolved in 2003. Today, the symbols used by the 16th Center on its insignia reflect its three main missions: communications interception, cryptanalysis, and computer network operations (CNOs).

These insignia also reveal that the center is likely composed of at least ten departments, only one of which had been previously documented in open sources, along with several regional subdivisions. Each department appears to be responsible for specific missions (technical support, legal team, cyber operations, etc.), although their exact tasks are hardly identifiable. The discovery of these divisions suggests that the Center is staffed with at least 560 employees.

Finally, several geographic indications or maps present on the insignia allowed us to geolocate 10 interception centers highly likely operated by the 16th Center. These facilities, only documented by a few specialists, are spread across Russia to collect and decipher satellite communications (SATCOM) and foreign signals transmitted over the radio frequency (RF) spectrum from specific regions. Most of them are decades—or even a century—old, but seem to have undergone upgrades in recent years.

While much remains to be explored regarding 16th Center's precise operations, this study shows that combining "phaleristics" and OSINT techniques can offer an unprecedented look into the structure of one of the most secretive units of the FSB. More generally, it paves the way for further research on Russia's security agencies operating in Russia and abroad, including those engaged in intelligence-gathering in Ukraine and European countries.

[1] SIGINT refers to the collection, analysis, and exploitation of information from intercepted electronic signals for intelligence purposes. It is generally divided into two subcategories: Communications Intelligence (COMINT), which involves intercepting voice, text, or data communications, and Electronic Intelligence (ELINT), which focuses on non-communication signals such as radar emissions, typically to analyze the movements and capabilities of military equipment.

# FSB 16th Center Internal Structure

# Glossary

| | |
|---|---|
| **CDAA** | A Circularly Disposed Dipole Array, also called Wullenweber, is a direction-finding installation with a circular arrangement of antennas that enables 360-degree beamforming. |
| **COMINT** | Communications Intelligence is a subcategory of SIGINT which focuses on voice, text, or data communications. |
| **ELINT** | Electronic Intelligence is a subcategory of SIGINT which focuses on non-communication signals, such as radar emissions |
| **FAPSI** | The Federal Agency for Government Communications and Information, created in 1991, was responsible for signals intelligence and security of Russian governmental communications. It was dissolved in 2003. |
| **FSB** | The Federal Security Service is the Russian internal security and counterintelligence service. Created in 1994, it is the main successor agency of the Soviet-era KGB. |
| **HF** | High frequency. |
| **KGB** | The KGB was the main security and intelligence agency of the Soviet Union from 1954 until its dissolution in 1991. It was responsible for internal security, foreign intelligence, counterintelligence, and the surveillance of dissidents. |
| **MBTA** | Multibeam Tracking Antenna is a type of satellite dish antenna capable of simultaneously intercepting signals from multiple satellites. It is used to maximize coverage across several orbital paths and frequencies. |
| **SATCOM** | Satellite Communications. |
| **SIGINT** | Collection, analysis, and exploitation of information from intercepted electronic signals for intelligence purposes. It is generally divided into two subcategories: Communications Intelligence (COMINT) and Electronic Intelligence (ELINT). |
| **TsSS** | Russian acronym for "Special Communications Centers," also known as "Information Reception Centers", FSB name for 16th Center's SIGINT stations. |

# Introduction to Russian Phaleristics

While many nations produce medals, badges, and flags bearing the symbols of their armed forces, Russian institutions have demonstrated a particularly strong and enduring attachment to decorative insignia—both military and civilian. During the Soviet era, millions of pin badges were manufactured to honor prominent individuals, professional groups, government bodies, and to commemorate local events, sporting competitions, or broader ideological themes tied to socialism and communism. This enthusiasm was so pronounced that it became the subject of satire. A popular joke from the 1970s went: "Did you hear Brezhnev had chest-expansion surgery? It was to make room for more medals."


**Figure 1 –** Examples of USSR Red Army insignia

Today, these decorations are primarily sought after by collectors, yet they also offer valuable insights for open-source researchers attempting to reconstruct the structure and evolution of Russian institutions—Imperial, Soviet, and modern alike. Insignia remain highly valued within Russian power structures, and large numbers continue to be produced annually for the "*siloviki*,"[2] including from the Ministry of Internal Affairs (MVD), the Ministry of Defense, the Military Intelligence Directorate (GRU), the Foreign Intelligence Service (SVR), and the Federal Security Service (FSB), which inherited much of the KGB's internal functions after the collapse of the USSR.

[2] *Siloviki* (силовики in Russian) refers to individuals within Russia's "power structures"—security, military, and law enforcement agencies—that wield coercive authority.

Since the early 1990s, a small number of specialized Russian manufacturers have continued to produce medals and pin badges for state institutions. These are typically awarded to personnel for completing specific missions, marking retirements, or commemorating organizational milestones—ranging from the anniversaries of entire ministries to the foundation dates of individual units or squads. The designs frequently incorporate mission-specific symbols, official acronyms, founding dates, references to predecessor entities, or even architectural renderings of buildings tied to the unit.

This long-standing tradition of symbolic representation has given rise to a dedicated field of study—one that treats these objects not merely as memorabilia, but as structured artifacts of institutional identity, hierarchy, and self-representation. Phaleristics (or faleristics) is the academic discipline concerned with the study of medals, orders, decorations, and related honors issued by states, organizations, and military bodies. It intersects with heraldry, numismatics, and military history, focusing on the design, symbolism, and socio-political context of these items, as well as the systems through which they are awarded. In the Russian context, phaleristics offers a valuable lens through which to reconstruct the evolution of security and intelligence agencies, particularly when such organizations remain largely opaque to public scrutiny.

# Methodology

Our assumption was that the principles of phaleristics could be leveraged as a powerful OSINT tool to investigate the operations of Russian intelligence services. The first step consisted in identifying the main online platforms where Russian military insignia are shared, sold, or discussed. We quickly realized that thousands of photos of these insignia,[3] including those associated with sensitive units, are readily available online, typically spread across three main types of sources:

1. manufacturers' websites, such as the renowned Breget, SpetsZnak and GosZnak, that publicly showcase their products for *siloviki*;

2. resale platforms, such as Meshok, where collectors and sellers trade these items, providing sometimes details on the origin of the insignia;

3. specialized forums, such as Faleristika.info, MirFaleristiki and Zasluga.msk.ru, run by phaleristics enthusiasts and veterans that also provide crucial information on the meaning and history of specific symbols and units.


**Figure 2** – Screenshot of the SpetsZnak "products" page

[3] Called *znaki* (знаки) in Russian.

As we began exploring these online sources, we quickly noticed that a significant number of insignia were explicitly labeled as belonging to the FSB 16th Center. Whenever such references appeared, we systematically collected and archived the corresponding images for further analysis. Each insignia was carefully examined and triaged based on the information it conveyed. Particular attention was paid to acronyms, unit numbers, symbolic imagery, cartographic elements, dates, and references to historical events or organizational affiliations.

To manage and structure the growing dataset, we used digiKam, an open-source photo management software. This tool allowed us to tag each image with relevant metadata—such as unit designation, suspected location, or symbolic themes—and to apply basic image corrections where necessary. Where geographical indicators were present, we used digiKam's built-in geolocation features to automatically plot insignia on a map. The research followed an iterative process: early findings, such as acronyms or creation dates, guided more targeted searches. These in turn led to the discovery of further insignia, which expanded the database and refined our hypotheses. Over time, this approach enabled a progressively clearer picture of the structure of the 16th Center.

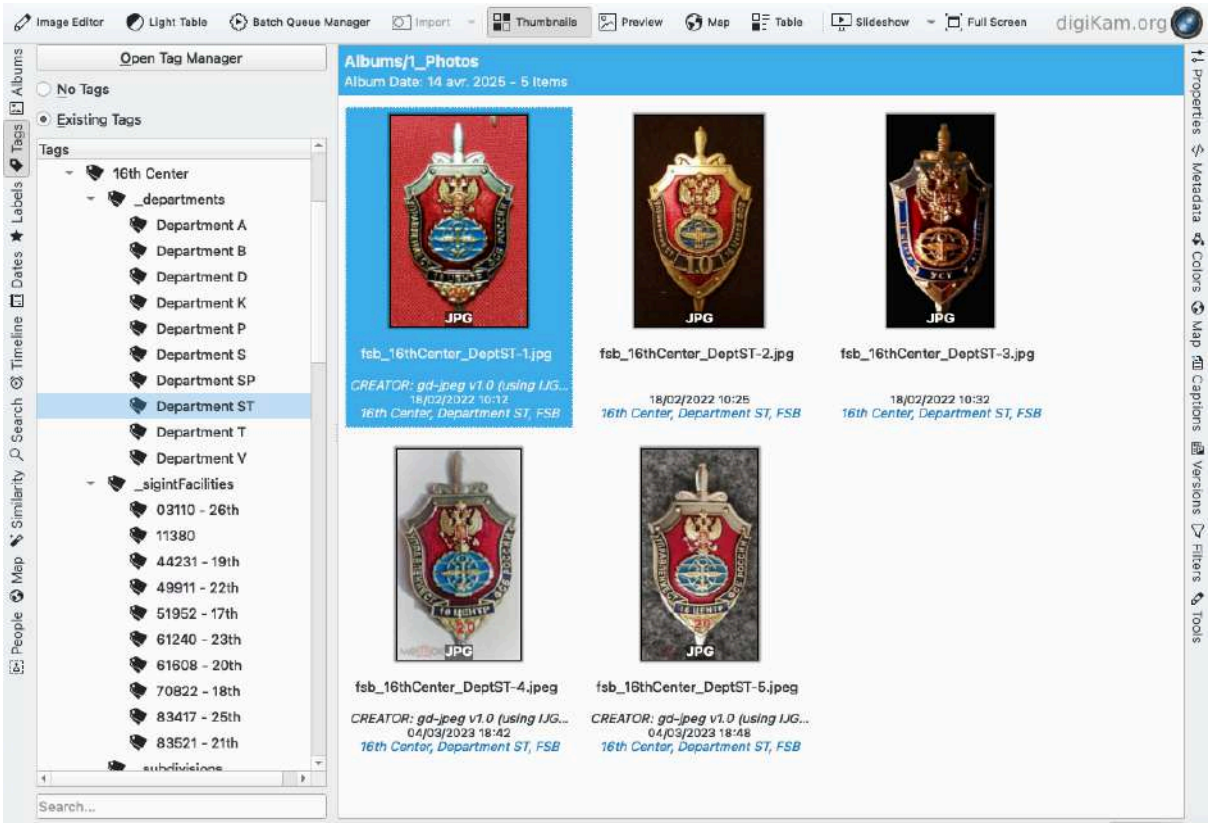



**Figure 3 –** Screenshot of digiKam showing compiled photographs of insignia linked to the FSB 16th Center's "Department ST"

Our focus on insignia was a deliberate methodological choice. Compared to flags, patches, or other decorations, metal unit insignia are more difficult to counterfeit due to production costs and specificity. When the reverse side of an insignia was visible, we could often identify the manufacturer and further assess the object's authenticity. The level of confidence in each insignia increased proportionally with the number of distinct photographs or sources where it appeared—especially when the same insignia was found on both commercial and enthusiast websites.

In this report, we will demonstrate how collecting and analyzing insignia can reveal critical insights into highly sensitive units, based on a sample of more than 200 publicly available photographs of insignia from the FSB 16$^{th}$ Center. It is important to stress, however, that insignia represent only what military units choose to commemorate. While they offer rare and valuable insights—particularly in otherwise opaque intelligence structures—they reflect a curated and symbolic self-representation. As such, their content should always be interpreted in the context of other OSINT methods and cross-validated when possible.

# 16th Center History

## Context

The FSB 16th Center traces its roots back over 50 years within the Soviet and Russian SIGINT organizations. The unit was officially established by KGB Order No. 0056 on June 21, 1973, which granted autonomy to Directorate "D" (for Decryption) from the KGB 8th Main Directorate, historically responsible for communications encryption. During the Soviet era, the unit—then known as the KGB 16th Directorate—oversaw a wide array of operations. These included managing SIGINT stations across the USSR, intercepting communications from KGB "*rezidentura*" abroad, planting microphones and tampering with electronic equipment destined for foreign embassies in the USSR, sweeping Soviet government buildings for bugging devices, and cracking codes used by foreign intelligence and diplomatic services.

After the collapse of the USSR and the failed coup attempt in 1991, the KGB 16th Directorate was first transferred to the Committee on Government Communications under the President of Soviet Union, that only lasted three months, and then to the 3rd Directorate of FAPSI (Federal Agency of Government Communications and Information),[4] also known as the Main Directorate for Radio-Electronic Intelligence by Means of Communication. This agency oversaw Russia's domestic interception centers, but also maintained a network of foreign SIGINT stations known as the "System of Joint Acquisition of Enemy Data" (SOUD).[5] Key SOUD facilities were located in Lourdes, Cuba, and at the Cam Ranh naval base in Vietnam.

When FAPSI was dissolved in 2003, following repeated scandals and "cannibalization" by other Russian intelligence services (FSB, GRU, and SVR), its SIGINT capabilities within Russian territory were absorbed by the FSB into a structure that, ironically, retained the same number as during the Soviet era: the 16th Center. The Center inherited the electronic interception and cryptanalysis missions of both the KGB and FAPSI, while also expanding its capabilities to conduct cyber-offensive operations abroad. The 16th Center has been publicly accused of operating some of Russia's most sophisticated cyber-espionage groups, including Turla[6] and Energetic Bear,[7] active since 2004 and 2010 respectively.

Today, the 16th Center reportedly operates directly under the authority of the FSB Director and is known by two additional designations: its full name, the "Center for Radio-Electronic Intelligence by Means of Communication,"[8] and its military unit code, "Unit 71330". This practice is consistent with Russia's intelligence and security services' method of concealing activities in public records by replacing the names of military units with five-digit codes to

[4] Федеральное агентство правительственной связи и информации (ФАПСИ) in Russian.
[5] Служба объединённого учёта данных о противнике (СОУД) in Russian.
[6] Also known as Venomous Bear, Krypton, Uroburos or Secret Blizzard.
[7] Also known as Crouching Yeti, Berserk Bear, Temp.Isotope, Dragonfly, Ghost Blizzard or Bromine.
[8] Центр радиоэлектронной разведки на средствах связи (ЦРРСС) in Russian.

obscure the origin, size, and mandate of the units. The legal address of the unit is "Moscow, Pechatnikov Lane, Complex 13, Building 1,"[9] which corresponds to an unremarkable building located in the heart of Moscow.

## Unit Main Symbols

To begin with, the elements visible on the insignia provide insights into the unit's current symbolism. Like all units from the FSB, the 16th Center employs the standard format of the shield and sword, symbols inherited from the KGB, against a red background, a color traditionally associated with the FSB. As we can see below, the insignia also always features the Russian coat of arms adopted in 1993 that actually restored pre-Soviet symbolism. This emblem consists of a double-headed eagle clutching a scepter and an orb surmounted by a cross, representing imperial authority and the Orthodox Church, respectively.

**Figure 4 –** Examples of 16th Center insignia

[9] Москва, пер. Печатников, д.13 стр.1 in Russian.

The distinctive symbols of the 16th Center positioned beneath the imperial eagle reveal that the Center portrays itself in two distinct ways. In the five photographs on the first row, we can see a terrestrial globe featuring the Russian Cyrillic letter "i" (see Figure 4). This letter is commonly associated with the Russian word "information" in Soviet and Russian security services, and could be a reference to the information the unit is capable of acquiring. In our opinion, it is likely that these insignia led the Dossier Center[10] to believe that there was a separate Department "I" within the 16th Center.

The second depiction of the Center, visible in the five photographs on the second row, is more striking. It features an antenna positioned next to a key being shattered by a lightning bolt. The antenna is a fairly common symbol of radio transmissions, but is also used to represent signals intelligence (SIGINT), that is to say the collection, analysis, and exploitation of electronic signals to gather intelligence.

The lightning bolt is widely used by military forces worldwide to represent SIGINT, cyber operations and electronic warfare. It generally symbolizes the interception, disruption, and manipulation of enemy communications and radar systems. Here, it aligns with what Russian doctrine refers to as "radio-electronic intelligence" (*radioelektronnaya razvedka*),[11] commonly abbreviated as RER. This terminology is even spelled out explicitly on the insignia in the bottom center.

Finally, the last element in the 16th Center's visual representation is the key itself—traditionally associated with secrecy and, more specifically, the security of communication channels. Here, the key shattered by the lightning bolt is highly likely an explicit reference to cryptanalysis, the branch of cryptography dedicated to breaking codes and cryptographic systems. Based on these elements, it already appears that the 16th Center has indeed retained the SIGINT and decryption missions of the KGB's former 16th Directorate.

[10] The Dossier Center is a media organization founded by former Russian oligarch Mikhail Khodorkovsky that "tracks the criminal activity of various people associated with the Kremlin."

[11] Радиоэлектронная разведка (РЭР) in Russian.

## Unit Genealogy

The texts visible on the insignia also helped corroborate the institutional trajectory of the 16th Center and offered insights into how the unit portrays its origins. As shown in Figure 4, most of the insignia indicate that the unit was established in 1992. Surprisingly, none of them reference the 2003 transfer of FAPSI's capabilities to the FSB. This omission suggests that the latter date is not seen as significant by the unit, which instead presents itself as the direct successor to the SIGINT organization formed in the immediate aftermath of the Soviet Union's collapse.

Several insignia also reference the year 1918—a date that, as we will see later, is linked to the creation of the first interception center currently supervised by the 16th Center (see below, Unit 61608).


**Figure 5 –** Unit 71330 insignia produced in 1991

Finally, during the course of our investigation, we uncovered a Soviet-era insignia bearing the designation "71330" (see Figure 5). This insignia produced in 1991 is most likely linked to the predecessor of the 16th Center,[12] based on the five-digit identifier and common symbols, such as the three winged lightning bolts, still associated with communications troops by the Russian military, and the depiction of the Spasskaya Tower from the Moscow Kremlin set against a Soviet flag.

[12] That is to say the KGB 16th Directorate, active until 29th August, 1991, or the Committee on Government Communications under the President of Soviet Union, active until 24th December, 1991.

It is also worth noting that the unit's founding date is listed as 1921—a date that the FSB, along with the SVR and FSO,[13] considers the birth of the country's cryptographic capabilities, originally established within the Cheka's[14] "Special division". This discovery is particularly intriguing, as no public documents stated, to our knowledge, that the designation "71330" was already used during the Soviet period. Given its production date, this insignia may represent one of the final items created for the unit before the collapse of the Soviet Union.

[13] The FSO (Federal Protective Service) is a Russian government agency responsible for protecting high-ranking government officials and national critical infrastructure. In 2003, the FSO also inherited certain responsibilities from FAPSI, which are now integrated into *Spetssvyaz* (Special Communications and Information Service of Russia), a specialized branch primarily tasked with securing government communications.

[14] Abbreviation of the "All-Russian Extraordinary Commission", the first secret police created under the Russian Soviet Federative Socialist Republic in 1917.

## 16th Center Internal Structure

Until now, the internal structure of the 16th Center had been poorly documented in open sources. In fact, the last known structural overview of the SIGINT capabilities that the 16th Center inherits dates back to the organization of the KGB's 16th Directorate, mentioned earlier. These capabilities were notably documented by military historian and cryptography expert David Kahn, who in the 1990s interviewed a veteran of the unit as well as its former head, Nikolay Andreyev—later one of the architects and senior leaders of FAPSI.

**Figure 6 –** Examples of 16th Center's departments insignia

During the KGB era, the 16th Directorate appears to have been organized into a "Service No. 1" (reportedly employing at least 100 personnel) alongside multiple departments. Tasks were divided among units that handled, for example, cryptanalysis (Directorate's First Department), the development of penetration capabilities, intercepted signals reception, transmission and cleaning, translation, reporting and dissemination, finances, etc.

The insignia associated with the unit in its current form have provided unexpectedly detailed insights into the structure of the 16th Center, which appears to have been streamlined compared to its Soviet predecessor—but remains complex. In total, we identified no fewer than 40 distinct insignia corresponding to different departments ("*upravleniya*") within the 16th Center of the FSB. Based on this evidence, we can now assert with a high degree of confidence that the 16th Center comprises at least 10 departments, designated as A, B, V, D, K, P, S, SP (for "Special Programs"), ST, and T. As previously mentioned, only the existence of "Department B" had been publicly documented by the Dossier Center.

Even though we were not able to determine the exact founding dates of all these departments based on their insignia, some appear to have been established relatively recently, while others trace their origins back to before their incorporation into the FSB in 2003. Notably, "Department A" seems to have been created in 1996, while "Department T" appears to date back to the KGB era, as early as 1977. Once again, the dates chosen by these units highlight the fact that they consider themselves the direct inheritors of the intelligence capabilities developed by the Soviet Union.

By cross-referencing the likely production dates of insignia with the number of years often displayed on them, it is also possible to estimate the minimum age—or even the approximate founding date—of certain units. For example, the photo of the "Department S" insignia shown in the center of Figure 6 was posted in 2022 and states that the unit was celebrating its 20th anniversary. It can therefore be concluded, with a high degree of confidence, that the unit was established no later than the year 2000.


**Figure 7 –** From left to right: 16th Center's "Section 3," "Section 7," and Department T subunit "No. 9"

Other artifacts suggest that the structure of the 16th Center is even more complex, with subdivisions existing within departments as well as local branches. Several insignia indicate that "Department T" includes a subunit designated as "9", which was established in 2008. Additionally, the center appears to have at least two sections ("*otdel*") numbered 3 and 7. Based on available photographs shown below, "Section 7" is located in Novosibirsk.

The biggest unknown remains the exact division of responsibilities between these various departments. Several of them feature distinct symbolism that suggests specific areas of operation. For example, "Department ST" displays an unbroken key over three winged lightning bolts—imagery commonly associated with the protection of internal communications. "Department K", on the other hand, prominently features a computer, implying a role in Computer Network Operations (CNO). It is also likely that the department letters are not arbitrary but instead correspond to the unit's mission. For instance, "B" could stand for security ("*bezopasnost*"), while "D" might denote cryptanalysis ("*deshifrovka*").

These ten departments and two sections allow us to estimate the minimum number of personnel working within the 16th Center. According to Andrei Soldatov and Irina Borogan, prominent experts on Russian intelligence services and authors of the website Agentura, an FSB unit is typically designated as a "department" once it reaches 55 employees, while a "section" requires at least eight. Based on these criteria, we can assert with a high degree of confidence that the 16th Center currently employs at least 566 personnel.

# 16th Center SIGINT Facilities

During our research, we identified numerous insignia produced for FSB "Special Communications Centers" (TsSS)[15] designated either by a five-digit identifier or a number, for example "17th TsSS." By focusing on these names and cross-referencing unit numbers, founding dates, and other distinctive elements visible on the insignia, we were able to identify and geolocate a total of ten SIGINT stations composing a ground-based network highly likely operated by the 16th Center.

These listening posts, also referred to as "Information Reception Centers"[16] in the Russian literature, have all already been documented publicly and linked to the Center in various documents, whether through declassified reports or by intelligence historians and OSINT analysts. In fact, most of them are decades—or even a century—old, and several seem to have undergone upgrades in recent years. It is also possible to find more insights into the functioning of these units and their capabilities on Russian official documents, specialized forums populated with Russian SIGINT veterans, and even through urbex videos.[17]

Based on publicly available documents concerning these units and satellite imagery, FSB eavesdropping stations' primary task is to intercept sensitive voice traffic (COMINT) transmitted by both foreign civilian and military entities. To do so, they generally consist of a mix of radars, pole and parabolic antennas of various sizes designed to intercept downlink signals of satellites located in geostationary orbit (SATCOM).[18] Some feature circularly disposed antenna arrays (CDAA),[19] which are said to be capable of tracking signals up to 15,000 kilometers away.

While satellite pictures make it almost impossible to detect, several of these listening stations are located near fiber optic shore end or backbones, suggesting that they could also be engaged in terrestrial signals interception and transmission. Together, these systems theoretically enable the FSB to triangulate signals across a wide perimeter surrounding Russia,

[15] Центр специальной связи (ЦСС) in Russian.

[16] Центры приема информации in Russian.

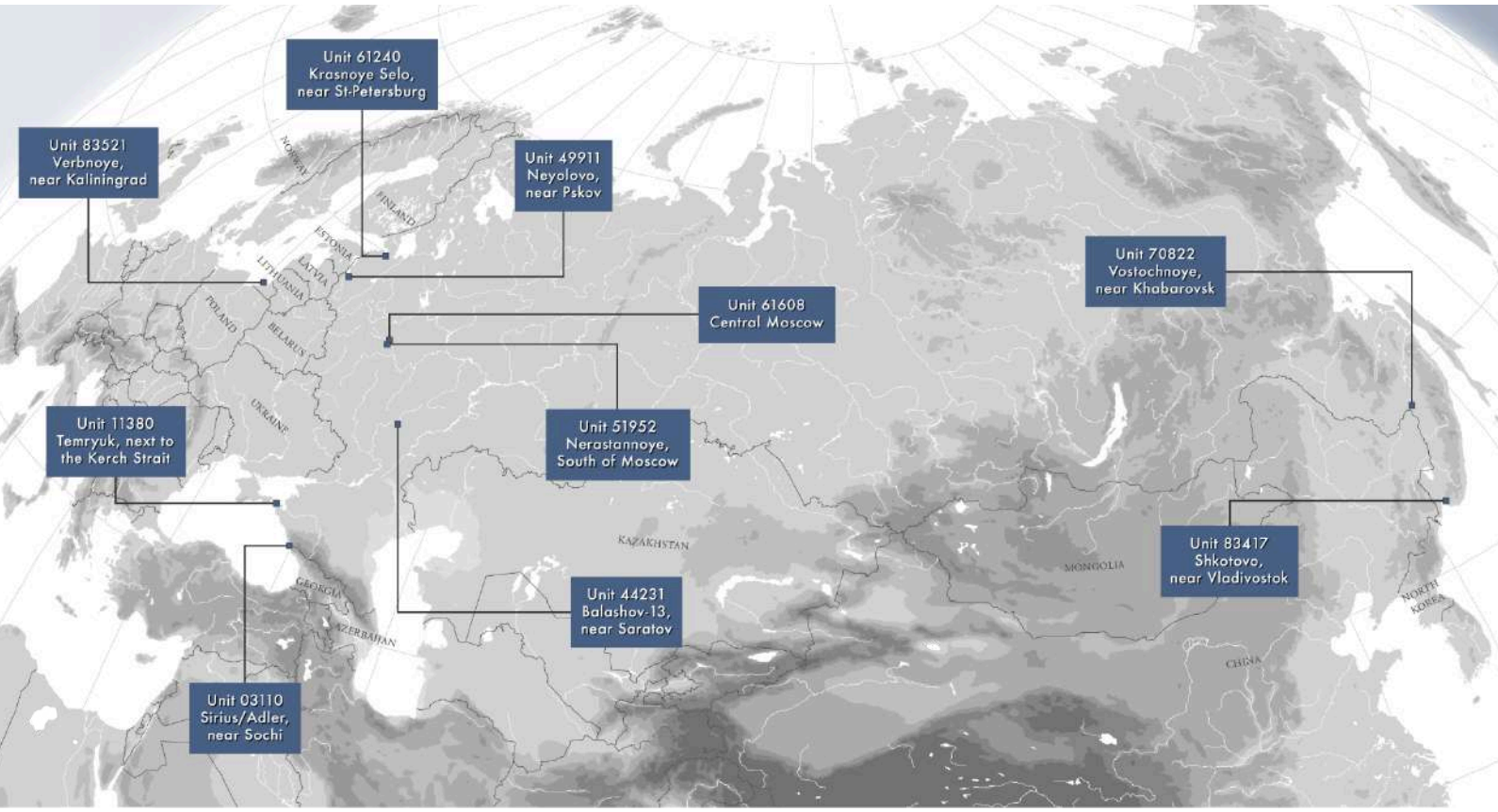
[17] These resources will not always be referenced to protect their authors.

[18] Satellite-transmitted signals are typically sent in bursts as the satellite passes over a target area. To monitor or intercept this data, a ground-based downlink facility must be located within the satellite's coverage footprint.

[19] Also called "circularly disposed dipole arrays" (CDDA) or Wullenweber, a CDAA is a direction-finding installation with a circular arrangement of antennas that enables 360-degree beamforming. CDAAs are highly effective for pinpointing the origin and direction of high-frequency signals. Both the United States and the Soviet Union heavily relied on this system for radio signal interception and geolocation during the Cold War.

and to track and intercept signals from aircraft, ships, or satellites carrying diplomatic, governmental, or even sensitive commercial communications.

Though the widespread adoption of encryption may have complicated signal interpretation, the 16th Center—long rooted in cryptanalysis, as previously discussed—very likely intercepts encrypted communications in an effort to break their keys. Below, we outline each of these centers spread across the Russian territory, detailing their alternate names, history, equipment, and how we managed to geolocate them based solely on phaleristics and open sources. For each of these eavesdropping stations, we provide satellite imagery and showcase examples of associated insignia.



# UNIT 03110

The first known SIGINT station under the FSB 16th Center is Unit 03110, established in 1975. The oldest insignia linked to this unit feature symbols such as tropical palms and a flag that confirm that it was previously stationed in Lourdes, Cuba, where the USSR and later Russia operated a major SIGINT base targeting sensitive communications in the region, including the United States. The base was successively managed by the GRU and KGB, then by the GRU and FAPSI, before being officially shut down in 2001. While speculation persists that Russia may be attempting to reestablish a presence there, historical satellite imagery confirms that Unit 03110, also known as the 26th Special Communications Center, was relocated to Russia in the late 2000s.


**Figure 8 –** Unit 03110 compound and insignia, coordinates: 43.391751, 40.002668

By cross-referencing information from insignia and public records, we can state with very high confidence that Unit 03110 is located in the city of Adler, 25 kilometers south of Sochi. The base is situated just 500 meters from the border with Georgia, or more precisely, Abkhazia—the breakaway Georgian region that has been under Russian control since the 2008 Russo-Georgian War. The base is the newest among the ten we have identified, and the only one that equipped its antennas with radomes designed to protect the equipment from weather and hide its orientation and specifications from unwanted eyes. These domes, which may contain a radar or a dish antenna, are even depicted on one of the unit's insignia, which also portrays the facility facing the sea, with mountains in the background (top right insignia).

The facility currently houses at least five radomes, with the smallest measuring around six meters in diameter and the largest exceeding 25 meters. Some of these structures are even visible on Google Street View. It is also possible to distinguish a small vertical antenna array near the radomes from an aerial image of the site available on Yandex Maps. The site is enclosed by a barbed-wire-topped wall and contains over a dozen buildings, likely serving as operations, control, and support facilities, as well as recreational infrastructures. Given its location, the Unit 03110 could be tasked with monitoring assets and intercepting communications in the Caucasus and the Middle East.

# UNIT 11380

The second FSB SIGINT facility we were able to identify is home to Unit 11380 and significantly older, reportedly established in 1943. It is located near the town of Temryuk, just 50 kilometers from the Kerch Strait and Crimea. One of its insignia indicates that its former unit number was 61615, corresponding to a Soviet-era SIGINT center close to Rustavi, near Tbilisi, Georgia's capital. This suggests that the unit was transferred back to Russia after the collapse of the USSR. The center was identified through several sources, including a forum where former SIGINT officers confirmed that the unit was later relocated near Temryuk. Satellite imagery of the compound shows large dish antennas and a distinctive multiple beam torus antenna (MBTA)—approximately 15 meters in diameter—which appears on multiple insignia of Unit 11380.


**Figure 9 –** Unit 11380 compound and insignia, coordinates: 45.240872, 37.262438

The main building hosts at least a dozen medium- and large-sized parabolic antennas and a CDAA approximately 140 meters wide. It is also possible to identify an antenna field with at least four vertical antennas likely capable of capturing signals omnidirectionally and that can be adjusted to collect and home in on specific high-frequency (HF) signals. Some of these dish antennas, along with the four vertical antennas, are visible in images preserved by Google Street View. Judging by the unit location, the center is likely supporting Russia's intelligence-gathering efforts in the Black Sea region, as well as in the Near and Middle East.

# UNIT 44231

The third SIGINT facility is home to Unit 44231, which was established in 1968 and is located in the Saratov Oblast, approximately 300 kilometers from the northwestern Kazakh border. Its location was confirmed by identifying a cluster of large antennas around the town of Balashov-13, a name that appears on several of the unit's insignia. At the center of the compound, satellite imagery reveals two control buildings surrounded by approximately 15 parabolic antennas of varying sizes. To date, no publicly available photographs of the facility have been found, as it remains well hidden in the vast steppe landscape.


**Figure 10 –** Unit 44231 compound and insignia, coordinates: 51.476034, 43.485856

A close examination of the area surrounding the compound also reveals what look like a small CDAA, at least two pole antennas and a field containing several dozen vertical antennas arranged in lines or clusters across a zone roughly 1.6 kilometers wide and 2 kilometers long. These installations are likely optimized for intercepting signals across multiple high-frequency bands. Based on its location and equipment, Unit 44231 seems mainly employed to monitor signals transmitted via satellite (SATCOM), and could also track signals in the Central Asia region.

# UNIT 49911

Unit 49911 was established in 1939 and is located near Neyolovo, in the Pskov Oblast, just 25 kilometers from the Estonian border. The facility has been mentioned in public documents since late 2000s, notably by the Estonian Foreign Intelligence Service in 2019 that confirmed its affiliation with the FSB 16th Center and even included a photograph of the site showing a set of parabolic antennas. These SIGINT equipments can also be seen on a 360-degree photograph uploaded in February 2025 available on Yandex Maps.


**Figure 11 –** Unit 49911 compound and insignia, coordinates: 57.802142, 28.215784

We can now confirm that the eavesdropping station is also referred to as the 22nd Special Communications Center and explicitly stated its location in the Pskov Oblast on several insignia, as seen on the pictures above. The compound is relatively small compared to other FSB eavesdropping stations, but is well-positioned to monitor activities in the Baltics and intercept sensitive communications, including those of the satellite Inmarsat-GX5, according to the Russian space program analyst Bart Hendrickx.

# UNIT 51952

Unit 51952, also known as the 17th Special Communications Center, is one of the best publicly documented FSB SIGINT stations. Based on CIA declassified documents, the American intelligence historian Matthew Aid stated in 2013 that the listening post was likely involved in "the intercept of diplomatic communications traffic coming in and out of Moscow," while the Ukrainian electronic communications specialist Vadim Grebennikov described the center as being responsible for "the interception of wireless and wired communications and the monitoring of Internet traffic in the Moscow region." The unit even has its own church and Wikipedia page—available only in Russian—detailing its history and the way to reach the "closed military town" by bus.

**Figure 12 –** Unit 51952 compound and insignia, coordinates: 55.062557, 37.661036

Though open source material regularly assume that the unit has been established by KGB order No. 00297 of June 7, 1956, insignia suggest that it was created as soon as 1952, which is the date of the founding of the military town. Its compound is located approximately 75 kilometers south of Moscow, in the town of Nerastannoye, which is frequently displayed on insignia. Judging from satellite imagery, unit 51952 today possesses "only" a dozen SATCOM intercept parabolic antennas and a small CDAA.

# UNIT 61240

Unit 61240, established in 1940, is also referred to as the 23rd Special Communications Center. This center is the most revealing in terms of the information conveyed through its insignia. As shown in the examples below, one insignia outlines in exceptional detail the unit's institutional trajectory—from its founding under the NKVD, through its incorporation into the KGB and later FAPSI, before becoming part of the FSB. The insignia even features the official founding decree (*prikaz* in Russian) and a clearly labeled map pointing directly to the town of "Krasnoye Selo."

Another insignia includes an accurate depiction of the unit's neoclassical-style building alongside a series of antennas which matches satellite imagery, as well as the town name, the unit's creation date (1940), and the year the insignia was issued (2015). The unit has been documented in numerous declassified CIA reports and in the Estonian Foreign Intelligence Service's 2019 report.


**Figure 13 –** Unit 61240 compound and insignia, coordinates: 59.737041, 30.025704

The SIGINT center is located 25 kilometers southwest of Saint Petersburg, a city frequently mentioned or depicted on the unit's insignia. Its location, just 100 kilometers from the Estonian border and 150 kilometers from Finland, across the Gulf of Finland, suggests that the unit is likely tasked with gleaning intelligence from SATCOM and HF signals on Northern Europe.

# UNIT 61608

Unit 61608, also known as the 20th Special Communications center, is the oldest SIGINT unit currently under FSB control, claiming to have been established as early as 1918. Drawing from numerous public sources, including aforementioned declassified CIA reports, forums and urbex videos, we can confirm that the unit is situated south of Tsaritsyno Park, concealed within a dense forest in the heart of Moscow. Contrary to Agentura's assertions, the unit is unlikely to be the headquarters of the FSB 16th Center, but rather just a piece of its ground-based SIGINT stations network.

The unit's insignia frequently feature symbolic representations of Moscow, including the Kremlin. Recently taken photos by urban explorers confirm that, although the center is relatively small, it hosts more than a dozen parabolic antennas near the T-shaped control building, as well as pole antennas arranged in an antenna array slightly further north. According to Matthew Aid, this center was likely employed to intercept diplomatic radio traffic coming in and out of Moscow, in addition to more recent tasks involving the interception of satellite communications.


**Figure 14** – Unit 61608 compound and insignia, coordinates: 55.592169, 37.689097

# UNIT 70822

Unit 70822—also known as the 18th Special Communications Center—was established in 1924, making it the third-oldest SIGINT unit currently operated by the FSB. The center is located south of the village of Vostochnoye, east of Khabarovsk, and sitting less than 40 kilometers from the Chinese border. Many of Unit 70822's insignia prominently display the name Khabarovsk and feature a distinctive 25-meter dish antenna.

Satellite imagery clearly reveals a CDAA approximately 160 meters wide within the main compound, along with more than a dozen dish antennas likely dedicated to SATCOM interception. The CDAA could be used to triangulate and intercept sensitive signals at long range in the Northern Pacific, including detecting and monitoring submarines. The center also features a large antenna array consisting of several dozen pole antennas likely optimized for the signal characteristics of their targets, that can be observed from just a few meters away via Google Street View.

Unit 70822 is located just 8 kilometers from Unit 48260, a SIGINT facility operated by the GRU that also features its own CDAA. Given its location, the center is likely focused not only on SATCOM interception but also on broader SIGINT collection across Northeast Asia—potentially targeting the two Koreas, Japan, and China.


**Figure 15 –** Unit 70822 compound and insignia, coordinates: 48.469750, 135.262709

# UNIT 83417

Unit 83417, also known as the 25th Special Communications Center, was created back in 1942, likely to support the NKVD's SIGINT missions in the North Pacific during World War II. Its recent insignia regularly mention Shkotovo, a town located in the Primorsky Krai's Ussuri Bay, about 40 kilometers northeast of Vladivostok. The SIGINT facility is located just 80 kilometers from China and 170 kilometers from North Korea.

According to satellite imagery, the center includes at least eight parabolic antennas—four of which measure approximately 15 meters in diameter—likely used for SATCOM interception. While the CDAA located just west of the facility appears to be inactive, the site is also equipped with several large pole antennas, some of which are visible from nearby roads on Google Street View.

**Figure 16 –** Unit 83417 KGB insignia

During our research, we uncovered a KGB insignia (see Figure 16) with the same five-digit unit number and symbols of electronic warfare, suggesting that this designation was already used during the Soviet era. The insignia also references the "Red Banner Far Eastern Military District," a Soviet-era military formation distinguished for exemplary service. As with the previous SIGINT station near Khabarovsk, Unit 83417's location and equipment suggest a focus on SATCOM and likely data collection on activities such as military exercises, missile tests and submarine maneuvers in Northeast and East Asia.


**Figure 17 –** Unit 83417 compound and insignia, coordinates: 43.338538, 132.353302

# UNIT 83521

The last FSB 16th Center SIGINT facility we identified is home to Unit 83521, also known as the 21st Special Communications Center. It is the second-oldest unit of this list, with its origins reportedly dating back to 1921, and the one for which we have collected the fewest insignia—only three. However, information from various sources, including the Estonian Foreign Intelligence Service, has allowed us to geo locate it in Verbnoye, within Russia's Kaliningrad exclave.

The unit is located near the Baltic Sea, just 45 kilometers from the Lithuanian border to the north and 60 kilometers from the Polish border to the south. Its strategic location makes it a prime listening post for intercepting SATCOM, as it provides the ability to monitor radio traffic and potentially intercept communications delivered by satellites over private companies and sensitive military sites across Europe.


**Figure 18 –** Unit 83521 compound and insignia, coordinates: 54.930889, 20.533986

Soviet-era insignia bearing the same five-digit number suggest that this unit, like 03110, inherited the designation of a SIGINT base once located in a former Soviet republic. The number 83521 was, in fact, associated—at least until 1991—with a listening station based in Saryagash (or Sary Agach), in present-day Uzbekistan. It is also worth noting that this unit is the only one to depict a satellite and its orbit on its insignia, likely confirming SATCOM interception.

# Conclusion

This investigation demonstrates that even relatively overlooked sources—such as military insignia—can yield significant insights into the structure, history, and mission sets of sensitive intelligence units. Over the course of more than a year, we have systematically compiled, analyzed, geolocated, and cross-referenced hundreds of insignia attributed to the 16th Center. Our work relied only on a limited set of online platforms, supplemented by open-source satellite imagery and the use of a free photo management tool to organize and tag each badge.

By decoding the visual language of these insignia—acronyms, symbols, stylistic consistencies, foundation dates—we were able to reconstruct a partial but meaningful picture of the Center's history, internal organization, and operational footprint. Based on the available evidence, the Center appears to oversee more than 560 personnel across at least 10 departments and to operate a network of at least 10 ground-based SIGINT facilities likely involved in intercepting sensitive foreign communications.

These findings contribute to filling the gaps in public knowledge about Russian signals intelligence capabilities and confirm existing literature. Just as importantly, it provides a scalable framework for examining other structures within Russia's security ecosystem. Yet key questions remain. The precise missions of individual departments and the absence of insignia for certain known 16th Center subunits—such as Unit 28735, a SATCOM interception site near Alushta equipped with a 25-meter antenna—highlight the gaps that still need to be filled.

Future work will aim to expand our insignia dataset, improve attribution confidence through additional cross-referencing, and explore how similar methods can be applied to other agencies and services. We also hope this methodology encourages new lines of inquiry into opaque military and intelligence structures beyond Russia, particularly in contexts where commemorative traditions—though perhaps less prolific than in Russia—can still provide unexpected windows into the inner workings of military and intelligence organizations

# Annexes

## Review Process

This document has been reviewed by two external reviewers qualified in the field of research. As the standard Check First assessment grid typically used by reviewers was not suitable for this report, it was not graded but rather acknowledged by the reviewers for its quality.

The external reviewers for this document are :

- Researcher, ISCTE-IUL
- Researcher, cybersecurity company