

CELLULAR INTERCEPTION SOLUTIONS



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Introduction

From the time of its inception in early 80s, cellular communication technology has gained popularity and has grown worldwide with approximately 5 billion users currently and is still continuing to grow. The technology also has changed in the past years and the world has started graduating to 5G technology and talking about 6G technology. The availability of cellular networks in wide geographical areas and the ease of communication, literally from anywhere to anywhere, has resulted in even the anti-national elements misusing the technology to carry out subversive/anti-national activities.

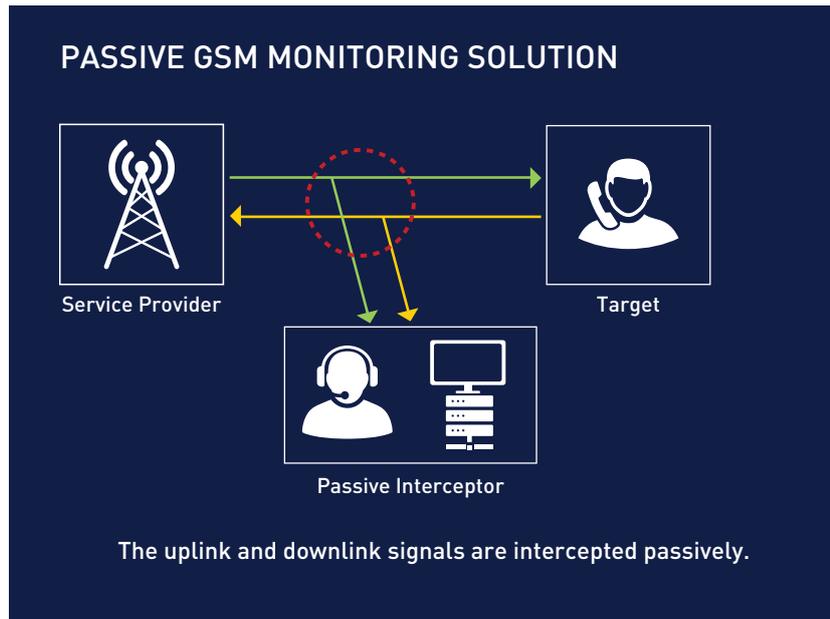
Cellular Interception Solution helps law enforcement authorities to acquire, analyze and manage intercepted cellular communications such as voice and data. This becomes vital as terrorist and criminal elements rely upon cellular mobile communications to carry out their nefarious operations.

GSM PASSIVE MONITORING SOLUTION

Introduction

Stratign's Passive Cellular Interception Solution is the most advanced 'Off-The-Air' interception and monitoring solution that currently exists worldwide. The system does not transmit any information and hence is completely undetectable either by the operator or by the target that is being intercepted.

The system can operate on all GSM frequency bands (850/900/1800/1900MHz) and can decipher A5/0, A5/2 and A5/1 encryption standard in real-time. It can be integrated with Stratign's Active Interception systems to intercept communications from 3G, 4G or 5G networks.



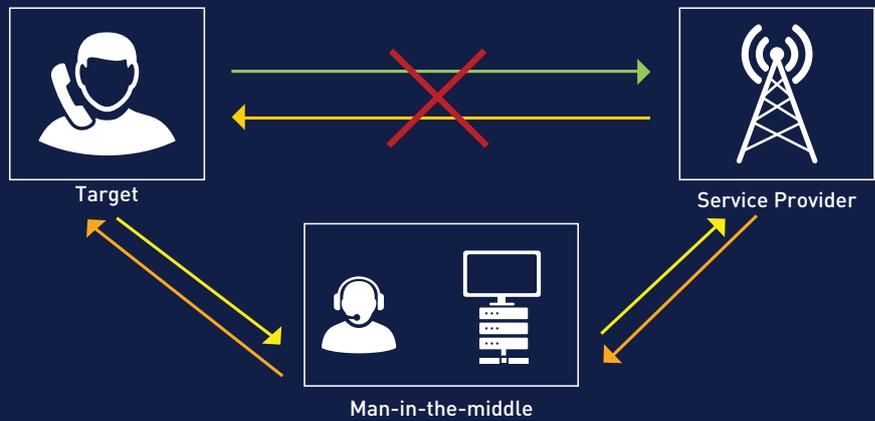
Features

- 100% passive system. Presence of the solution cannot be detected by anyone.
- Capable of intercepting duplex voice and SMS communications.
- Capable of monitoring 2G, 3G, 4G and 5G networks .
- Real-time passive deciphering of A5/1, A5/2, A5/0 encrypted signals.
- The system supports FR, EFR, HR and AMR voice codecs.
- Automatic scanning of GSM network parameters in the controlled area (service provider, broadcast channel no., LAC, cell IDs and signal levels).
- Online monitoring up to 32 duplex channels (scalable as per customer request).
- Selection of the targets by different parameters such as IMEI, IMSI, TMSI, target distance from the base station, type of target handset, target's dialed & received number (PLMN).
- Interception, monitoring and logging of communication in stationary or in mobile environments.
- The system automatically handles frequency hopping and handovers.
- Subscriber's location finding relative to the base station (LAC, BS, sector, distance with its indication on the digital map).
- Possibility of finding TMSI/IMSI/IMEI of a known MSISDN.
- Several STN-SUR GSMP systems can be configured in a LAN environment to provide a near exact physical location of the target and to form a Central Monitoring Station.
- Possibility of round-the-clock operation in an auto mode without the operator involvement.
- Simplicity of maintenance, which does not require a deep knowledge, either in the field of computers or in the field of cellular communication systems.



GSM SEMI-ACTIVE MONITORING SOLUTION

Targets are forced to communicate through the interception system.



GSM SEMI-ACTIVE MONITORING SOLUTION

Introduction

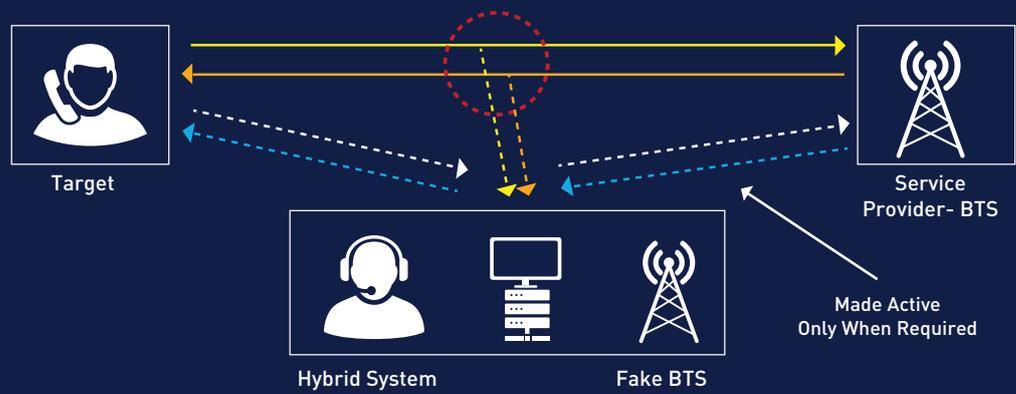
Our Semi-Active Cellular Interception Solution is designed to intercept 2G, 3G, 4G and 5G communications between the Base Station (BTS) & the Mobile Handset (MS) using the principle of 'Man-in-the-Middle'. The system emulates the service provider's BTS, forcing mobiles within the coverage range to log on to it. All the communications (Voice & SMS) of mobiles logged on to the system is

passed on to the actual network via the system & in the process all the communications are recorded. The system can intercept both incoming & outgoing communications. It can also carry out selective jamming of the communication. The system can operate on all frequency bands of 2G, 3G &, 4G and 5G cellular networks & decipher A5/0, A5/2 & A5/1 encryption standard in real-time.

Features

- Interception and logging of all 2G, 3G, 4G and 5G networks across the world and does not require the SIM of any network provider.
- The system can intercept and monitor all communications of the target (SMS, voice, CRI, location, etc.) till the time it is within the coverage range.
- Real-time interception of GSM communications encrypted using A5/1, A5/2 and A5/3 ciphering algorithms.
- The system is transparent to the target and the service provider.
- Modular design of the system allows scaling as per customer requirement.
- The system can extract the target's actual mobile number.
- System provides flexibility for the operator to modify the ID of selected targets (spoof) for both incoming and outgoing calls.
- The system features a selective jamming capability, using which the operator can disable certain services of the target like outgoing call, incoming call, SMS, SS, etc.
- System provides flexibility to the operator to make fake call (or send fake SMS) to target.
- Built-in automatic paging to obtain target related information such as IMSI, TMSI, IMEI, etc.
- No limit on the number of targets that can be added to the target list.
- Target list can be created using IMEI, IMSI or target's mobile number.
- Online monitoring up to 4/6/8/12/16/32 duplex channels (scalable).
- Stratign's Direction Finding equipment can be integrated with the system to home in on targets.
- Real-time listening of the intercepted cell phone calls.
- Possibility of round-the-clock operation in an auto mode without the operator involvement.
- Operation does not require a deep knowledge, either in the field of computers or in the field of cellular communication systems.
- The system has the capability of spotting keywords within the received SMS messages or the comments inserted by operators.
- Multiple systems can be configured in a LAN environment to increase the coverage.
- Extensive search feature enabling operators to perform search based on all call parameters.
- System is integrable with Stratign's Voice Forensic software (language identification, speaker identification, gender identification, etc.) and link analysis tools.
- System can be integrated with Stratign's OSINT software.

HYBRID SYSTEM OPERATION



HYBRID MONITORING SOLUTION

Introduction

The Hybrid Cellular Monitoring Solution is a combination of Passive Solution & certain features of Semi-Active Cellular Monitoring Solution. The basic functioning of the system is like the passive system; so the presence of the system cannot be detected during normal operations. The system is turned into an active

one when required. The active functions present in the system include obtaining the PLMN (actual mobile no.) of the target. The hybrid system also allows the operator to carryout spoofing, selective jamming or selective denial of services as done in the semi-active interception solution.

Features

- 100% passive system, the presence of the system cannot be detected by anyone while in passive mode.
- Capable of monitoring 2G, 3G, 4G and 5G cellular network.
- Capable of intercepting voice and SMS communications.
- Real-time passive deciphering of A5/1, A5/2, A5/0.
- 100% target call monitor rate: The system can monitor all communications of the target (SMS and voice) till he/she is within its coverage range.
- Real-time monitoring of 3G/4G/5G networks in the semi-active mode.
- The system does not require the service provider's SIM card for the operation unlike other active systems.
- Built-in automatic paging system to check the target presence.
- System allows to the system operator to make call (or send the SMS) using target identity.
- Automatic Public Numbers (PN) detection for registered handsets.
- The system can support FR,EFR, HR and AMR voice codecs.
- Can also be used for selective jamming. System can be used to block:
 - o Incoming calls/SMS.
 - o Outgoing calls/SMS.
 - o Or both incoming and outgoing on selected targets.
 - o Supplementary services.
- Automatically detects the ciphering algorithms used on the network and decrypts in real-time.
- Selection of the targets by different parameters such as IMEI, IMSI, TMSI, target distance from the base station, type of target handset, target's dialed & received number (PLMN).
- All the recorded cell phone conversations, call related information, network information is stored in hard disk of the processing computer.
- Monitoring of both forward and reverse channels (duplex conversation).
- Subscriber's location finding relative to the base station (LAC, BS, sector, distance with possibility of its indication on the digital map (optional).
- The system automatically handles frequency hopping and handovers.
- Display current status of receivers (recording/ scanning) and target numbers.
- Online listing of the cell phone calls.
- Possibility of round-the-clock operation in an auto mode without the operator involvement.
- Scanning of GSM network parameters in the controlled area (service provider, broadcast channel no., LAC, cell IDs and signal levels).
- Target position can be plotted on a GIS Map.
- Simplicity of maintenance, which does not require a deep knowledge, either in the field of computers, or in the field of cellular communication systems.
- System can be used in conjunction with Direction Finder to locate the position of the target.

Comparison of Passive GSM Monitoring Solution, Semi-Active GSM Monitoring Solution & Hybrid Monitoring Solution.

FEATURE	PASSIVE SYSTEM	SEMI-ACTIVE SYSTEM	HYBRID SYSTEM
Mode of Operation	Completely passive (the presence of the system cannot be detected).	Semi Active (very difficult to detect, but not impossible).	Hybrid.
Supported Voice Codecs	FR, EFR, HR, AMR.	FR, EFR, AMR, HR.	FR, EFR, HR, AMR.
Multi-Network Simultaneous Monitoring	Independently tunable receivers to any service provider.	System can be configured to monitor multiple service providers based on user requirement.	Independently tunable receivers to any service provider.
Maximum Distance that can be Covered by the System	Depends on the terrain and line of sight & the power transmitted by the service provider's BTS. Maximum can be up to 14kms.	Depends on the terrain and line of sight, usually up to 500mts, but can be increased up to 5kms by using power amplifiers.	Depends on the terrain and line of sight and the power transmitted by the service provider's BTS. Maximum can be up to 14kms for passive mode.
Possibility of Intercepting Full Duplex Calls	Possibility of missing trans side of conversation if the target handset is too far from the system.	100%. All the intercepted calls will be full duplex, which means that both the trans and receive side of the conversation of the target will be intercepted.	Possibility of missing trans side of conversation if the target handset is too far from the system.
Call Routing	Passive, hence routing not required.	Call is routed through the system.	No call routing.
Possibility of Spoofing SMS	Not Possible.	Possible.	Possible.
Possibility of Spoofing Calls	Not Possible.	Possible.	Possible.
Possibility of Retrieval of Public Number	Not Possible.	Possible.	Possible.
Automatic Target Interrogation	Can be done. During the process, the system is not fully passive, because it has to establish a silent call to the target's mobile phone. However, chances of detection of the silent call by the target is very rare.	Possible.	Possible.
Selective Jamming	Not Possible.	Possible.	Not Possible.



IMSI-CATCHER



Silent call from IMSI-Catcher and target phone response.

Introduction

Intercepting 2G, 3G, 4G and 5G networks by law enforcement and defence agencies globally have always been a challenge. With the introduction of mobile phones with latest technologies and higher-grade encryption algorithms, it has become even more difficult for such agencies to intercept or locate the target phones.

The 1st step in interception of any phone is identifying the presence of target phones in the areas of interest.

We offer IMSI-Catcher solution which is designed to covertly collect basic identities (IMSI, IMEI) of 2G, 3G, 4G and 5G mobile phones working within its coverage area without the knowledge of the service providers and the phone users. This will enable the agencies to identify the presence of the target in their area of operation. The IMSI-Catcher can also be used to selectively downgrade phones operating in the 3G/4G network to GSM operation mode. These phones can be intercepted by Passive GSM Monitoring Solution.

Features

- Passive and Semi-active type - IMSI/IMEI collection algorithm.
- Automatic configuration of transceiver modules depending on the RF environment.
- Full identification of IMSI, IMEI & TMSI information within its range and dynamic control capabilities, including comprehensive denial of service.
- Displays phone model, country of origin and the network provider.
- Can selectively force mobile phones to 2G/GSM operation mode.
- Comprehensive database featuring handsets cross referenced against IMEIs and networks against PLMNs.
- Compatible with Stratign's portable Direction-Finding System (optional).
- Integrable with Stratign's PLMN Search System to extract phone numbers of the targets (optional).

CDMA MONITORING SOLUTION

Introduction

Our Multi-Channel CDMA Monitoring Solution is a compact, innovative and modern CDMA interception system that can monitor & log CDMA communications in real-time. The system is available in different configurations based on the number of channels or systems to monitor simultaneously. All the linked systems can be configured & controlled from a central location. This system is a passive high-end, high-tech product that intercepts, controls channels & both sides of a conversation via traffic channels. It supports

IS-95R, IS-95B, CDMA 2000-1X CDMA networks. CDMA monitoring system mainly consists of receiver & software. The receiver unit takes care of processing of signals intercepted from CDMA network. After processing the signals, it passes the raw data to control laptop connected through cable. Control software running on the laptop is responsible for controlling the receiver unit, recording & storage of call information and playback of selected call.



Features

- Automatically detects the live CDMA network frequency and logic channels.
- Automatically measures the base station signal level and its quality.
- Indicator on the GUI gives the current activity of the system.
- Online monitoring of voice calls and SMSs.
- Capture and store the control channel information.
- Playback of recorded calls.
- Displays call related information while playing the calls.
- Automatically detects the incoming and outgoing calls (from base station to mobile or from mobile to base station).
- Capture and display the dialed-out number.
- Capture and display the ESN number of the target during registration in CDMA networks.
- Monitor and store SMS.
- Display start time of the call.
- Display duration of the call.

DIRECTION FINDER SOLUTION

Introduction

The first step in interception of any phone is identifying the presence of these target phones in the areas of interest. The next step is to home in on the target and apprehend them. IMSI-Catchers can give the likely location of the target phone with an accuracy of 300m for 2G and 30m for 3G/4G networks. It would be difficult for the user to home in on the target in a crowded/populated area.

Our Direction Finder can be handheld/used covertly to find the direction of the target phone & home in on to it.

Features

- Fully passive system, hence, cannot be detected by the service provider or the target phone.
- Can be integrated with smart phones to indicate the direction of the target.
- Can work in conjunction with Stratign's IMSI-Catcher and active interception solutions.
- Easy to operate.
- Allows the user to cover the last mile to apprehend the target.

OPTIONAL CONFIGURATIONS

Along with Cellular Interception Solutions, you can additionally configure the below optional supplies for added advantage.



Social Media Profiling (OSINT)

Social Media Monitoring Solution scans profiles and keywords on social media platforms, content storage platforms (e.g. blogs) in minutes & provides instant results, saving tremendous time. The input can be mobile numbers or email IDs



SDR BASED CELL PHONE INTERCEPTION

Stratign has developed SDR based receivers which can be tuned to any of the operational bands for 2G/3G/4G or 5G by a single click of

the mouse. These can be used in dynamic environments where the service providers are changing bands frequently based on the volume of traffic or in mobile operations where the operational networks are not known to the users.



Voice Forensic System (VFS)

VFS is a speech analysis system, analyzing audio files for speaker identification, language identification, gender identification and speech/non-speech detection, etc. Our VPA is based on client/server architecture.



Link Analysis

Link Analysis is a data analysis technique used to evaluate relationships/connections between network nodes, for the user to scan call patterns & derive the call hierarchy.



PLMN Number Extractor

This technology can be used to extract details like mobile no., country code, operator name, network name & technology 2G, 3G, 4G or 5G.



Cellular Direction Finder

Cellular Direction Finder works with the Semi-Active Cellular Monitoring System & IMSI-Catchers. Cellular Direction Finder combined with a body antenna finds the direction of mobile stations operating in 2G, 3G, 4G and 5G ranges.



Power Amplifier

The amplifier (20/40watt) is suitable for GSM base station and repeaters applications in the cellular frequency range. Amplifiers are available for GSM 900, 1800, 850 and 1900MHz frequency band.



High Gain Directional Antenna

High Gain Directional Antenna is designed to work with power amplifiers to achieve the maximum range.



Vehicle Integration Kit

Vehicle Integration Kit consists of shock proof 19" rack, shock absorbers, camouflaged antenna, notebook stand, etc. for the installation in a car/SUV.





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