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communication

EXPERIENCE THE DIFFERENCE
YOUR SECURITY & SAFETY PRODUCTS

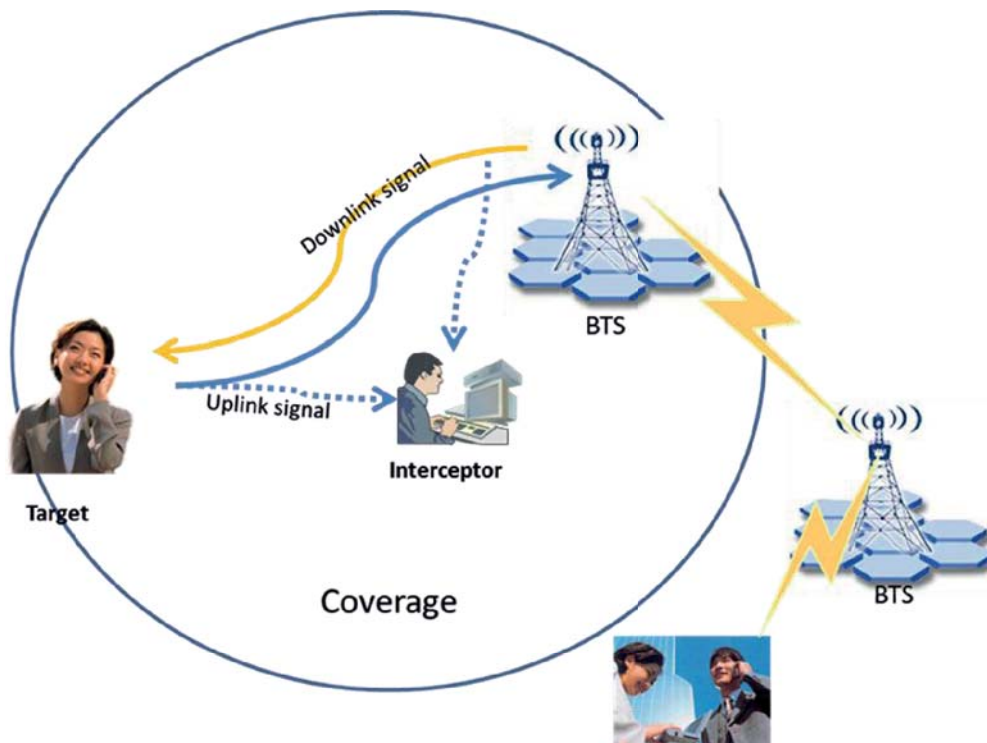# GSM PASSIVE INTERCEPTION SYSTEM

GSM PASSIVE INTERCEPTION SYSTEM

Passive GSM Interception Monitoring Unit

Introduction:

The system is a broadband fully passive GSM interception system. It is designed to record the entire traffic occurring between Base Transmitting Stations (BTS) and Mobile Stations (MS) located within the system's operational range. This means tens or even hundreds of simultaneous calls. The device allows user to scan, analyze, intercept, monitor or record short messages and phone calls from GSM mobiles, regardless of whether they are encrypted by A5/1 or A5/2 algorithm or not.

Passive GSM Interception Process

The system supports all GSM networks, including GSM 900Hz, DCS 1800Hz and EGSM. It is widely used in national departments and agencies such as Police, Public Safety, Procuratorates, Intelligence, etc., which plays a significant role in safeguarding national security and maintaining stability.

Functions:

1. The system works in a fully passive mode and the major functions are as follows:

   − Wide monitoring： Randomly monitor voice and SMS of multi-targets of different operators and cells, display caller / called phone number or TMSI.

   − Specific target monitoring： According to the parameters of targets, such as TMSI, MSISDN，

   the device is able to simultaneously identify targets, and intercept voice calls and short messages of multi-targets of different operators and cells.

   − Enable HR, FR, EFR, AMR-FR, AMR-HR.

   − Blacklist: after input the number, the system will highlight its audio and SMS for alert.

– Classification: The operators can classify targets as level (High/Medium/Low), information the will be relatedstored according to the level.

– The internal decryption unit can operate automatically without manual order. MySQL database is available, the information captured can be stored in MySQL.

– The system can output, delete, and query audio and message information. The audio will be stored as .wav,messages will be stored as excel file.

– Enable frequency hopping tracking function to prevent any loss or cutoff of captured data.

- Advanced search function base on MSISDN, TMSI, time and content. The system will highlight the SMS which contains key words.

– The device connects with PC via 100Mbps Ethernet

- The target can be set with TMSI, etc. Captured information is stored on the PC database (DB) for inquiry at any time, and also the system is able to playback all of the intercepted calls and short messages, to display all call related information.

- GIS function is available. The system can display BTS location and diameter on the map
Note: the GEO information (Longitude and latitude of Location) of BTS is acquired from third-party and may not follow latest BTS situation of local network.

2. Passive GSM interception system provides solutions for information interception in GSM network. And it has the following advantages and features:

- **Fully Passive and undetectable**

  – Do not interfere with GSM networks and mobile phones.

  – The system's operation is completely undetectable, so it can be used in

    for sensitive purposes, such as border monitoring, embassy monitoring, and prison control, etc.

- **Large Area Coverage**

  – The downlink and uplink signal receiver sensitivity is up to 110 dBm

  – For downlink channel, the system has same coverage as BTS's, the the distance of cover area is about 1000m (Up to the receiving signal quality and environment of target mobile phones).

  - For uplink channel, the distance of cover area is about 500m (Up to the receiving signal quality and environment of target mobile phones).

- **Advanced A5/1&A5/2 decryption algorithm**

  – Real-time decryption, A5/1 decryption time: <0.55s

  – A5/1&A5/2 decryption successive ratio is nearly 100% @ BER=0

- **Multiple channel voice monitoring and recording**

  - The system can search 548 cells, monitors 32 cells simultaneously and selects 128channels for random monitoring.
  – Monitoring channels can be customized according to different requirements, and support monitoring unlimited targets.
  - Captured information is stored on the operation terminal Database (DB) for inquiry, and also the system is able to playback all intercepted calls and short messages online or offline.
  Multiple inquiry conditions are available, such as time interval, monitoring flag, subscriber identity and call duration, etc.

- **Flexible configuration for monitoring cells and channels**
  - Automatic and manual mounted mode for ARFCN scan.
  - In manual operation mode, the system scans the channels, and the user selects the channels to be monitored.

- **Compact Size and Low Power Consumption**

  – The system has a compact design, which can be installed in different ways
  easily vehicle-mounted, fixed, or portable, and deployed rapidly.
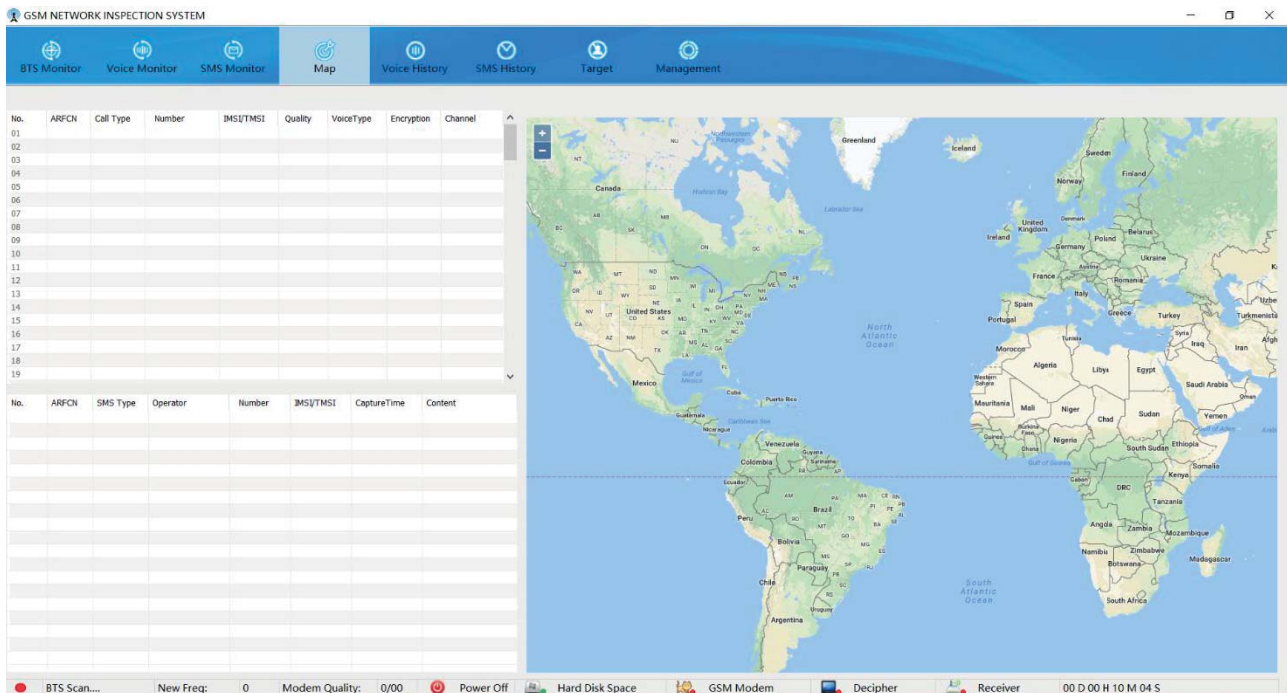 -Low power consumption: 250w.
  -Power supply: AC 220V.
  -All the function integrated in one cabinet.

- **Friendly UI**
  - The Friendly UI makes the system easy to learn and easy to operate.
  - Enable safety User-login system.
  - Connect to PC through 100Mbs Ethernet.

UI

Composition:

The Passive system is composed of monitoring unit, antenna, operation and maintenance unit (laptop), power supply.

- **Monitoring unit**

- Random or target intercept voice and SMS in the air interface, operation with internal A5/1&A5/2 decryption unit for cracking encrypted information.
- Call related information collection.

- **Deciphering unit**

Internal deciphering unit for cracking encrypted packages with fast speed and high accuracy.

- **Operation and Maintenance unit**

- Operation and management software is installed in a laptop.
- Set operation parameters.
- Save and analysis information collected by monitoring unit.

- **Antennas unit**

– Receive signals between mobile phone and BTS.

– 2 receiving antenna for signal monitoring, and 1 SMS antenna for silent message sending.
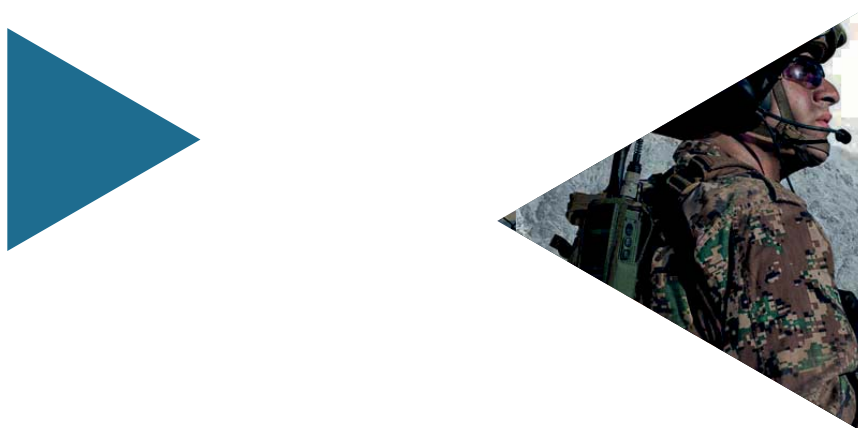
Hardware List

Name	Unit	Quantity	Remark
Omni-directional Antenna -Frequency: 800-960MHz，1710-2500MHz - VSWR：≤1.5 - Impedance：50Ω - Gain : 3dBi@800-960 MHz 3.5dBi@1710-2500MHz	set	2	
GSM Interception Device	set	1	
Control Platform - i7 Processor - 14"FHD IPS（1920 x 1080） - 4GB RAM - 1 TB HD - RJ 45 - Windows 10 64	set	1	Computer specification can be adjusted according to latest model

Specifications:

Item	PPG-128C
Equipment dimension(W*D*H)	430*300*176(mm)
Equipment appearance	All-in-one machine
Working frequency	GSM 900/DCS1800
The distance of operation coverage	Downlink:1000m; Uplink:500m (Up to signal quality)
Frequency bands	548
Processing speed	1.2GHz

Monitoring number of cells	32 cells simultaneously
Monitoring number of channels	128 channels simultaneously
Number of specific target control (black list)	Unlimited
Static receiver sensitivity	-110 dBm, single antenna receiving
A5/1&A5/2 deciphering delay	≤0.05s
A5/1&A5/2 deciphering rate	≥95％ (up to signal quality)
A5/3 deciphering	customizable
Specific target capturing rate	>90％
Power supply	AC: 220V(±10%)
Power consumption	≤250w
Ethernet interface	RJ45x1
Antenna interface	DINx2
Temperature adaptability	-10ºC - +50ºC
Relative humidity	< 90%