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IMSI CATCHER AND INTERCEPTION SYSTEM MODEL FALCON500



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1. SYSTEM DESCRIPTION

1.1 General problem overview.

Cellular networks GSM/UMTS/LTE are the most common standard for mobile communication in today's modern life. It is used all over the world, network's signal is available almost everywhere. People are carrying their mobile phones anywhere at all times. Mobile phones or user equipment are more than just a phone, they are used for constant and continues communication, personal data is saved on it, contacts list, social networks connections, online payment, and more. The mobile cellular phone has become as personal as an ID card.

In order to get access to the cellular network service, a mobile station needs to identify itself. This authentication is done by transferring via the air link, the SIM card's International Mobile Subscriber Identity (IMSI) and the International Mobile Equipment Identity (IMEI).

In conclusion collecting IMSI numbers and assigning them to the phone's owner, is essential for Law Enforcement investigation, not only to combat criminal activities but also for other task like searching for missing persons, etc.

In addition, ones the target is identified, his voice and text communication can be monitored, call and SMS recorded and reproduced upon request.

1.2 Solution overview

C4I's FALCON500 is an IMSI catcher and interception system, designed to collect cellular phones identities off the air, operating in GSM, identified predefined target Mobile Phone by their IMSI number and intercepting voice and text communication.

The FALCON500 use man in the middle technology, acting as a bridge between target mobile phones at the coverage area and the real service provider cellular network.

The FALCON500, can be quickly deployed and ready to run in just few minutes. Predefined targets by IMSI and/or IMEI numbers, voice and text activity can be intercepted and recorded.

If target is using 3G or 4G cellular network, it will be forced to downgrade to 2G for interception purpose.

Incoming and outgoing calls and SMS, are monitored in real time, and recorded for off line reproduction.

MSISDN (phone numbers) can be unveiled and associated to their corresponding IMSI number.

Real time 5.1 encryption deciphering, is performed by a dedicated server, on each target's activity. Kc cracking time in less than 2 seconds.

1.3 FALCON500 SYSTEM COMPONENTS.

1.3.1 Hardware casing.

Enclosed in a Pelican type model iM2620 or similar carrying case for mobile operations.

Note, case model varies depending on number of concurrent channels requested.

In-case components:

- System's Control computer
- Radio chains: SDR cards, duplexers and amplifiers
- Rechargeable battery (optional)

Out-case, accessories:

- Power supply. 110-220VAC to 28VDC
- Power cable
- External Omni-directional antennas

Management computer:

- Laptop standard computer
- Power supply

Additional equipment:

- 5.1 Deciphering unit



Fig 1: Main unit.

1.3.2 SYSTEM MAIN FEATURES

tem	Remarks
Network Scanning (channelization)	GSM BCCH scanning. Scanning of all bands and service operators.
Automatic System Configuration	The system configuration and network parameters are configured automatically, making the system setup simple and intuitive. Configuration profile can be saved for scheduled setup at a defined time and place.
IMSI Catching 2G (GSM)	Capturing mobile phone in the coverage area. Acquiring target MS identity parameters, including: IMSI, IMEI, TMSI, phone model, uplink Rx level, etc.
Downgrade	Force technology handover from UMTS or LTE to GSM
Target list	Defining different type of targets list, by IMSI and/or IMEI numbers. List type depends on type of action assigned (Release, or Monitoring)
Release mode	In this mode, mobile phones identity is registered on the system, but the mobile phone is rejected therefore returned to the real network.
Intercept mode	In this mode, the mobile phone will be attached to the system and at the same time kept registered to its home network.
MSISDN extraction	Revealing the target's mobile phone number.
Outgoing/Incoming call	Intercepting, calls activity, in GSM only. Audio is recorded in WAV format, can be listen or viewed in real time or reproduced later on.
Outgoing/Incoming SMS.	Intercepting SMS sent or received by the target.
Activity Pop-up alert	Alerting on important events of the target activities
Analyzing reports	Includes all the data collected during the operation, it can be retrieved using different filters, and can be extracted in csv format.
Reproducing call	Playback of recorded voice calls
Encryption	Supports 5.0, 5.1 and 5.2 encryption.



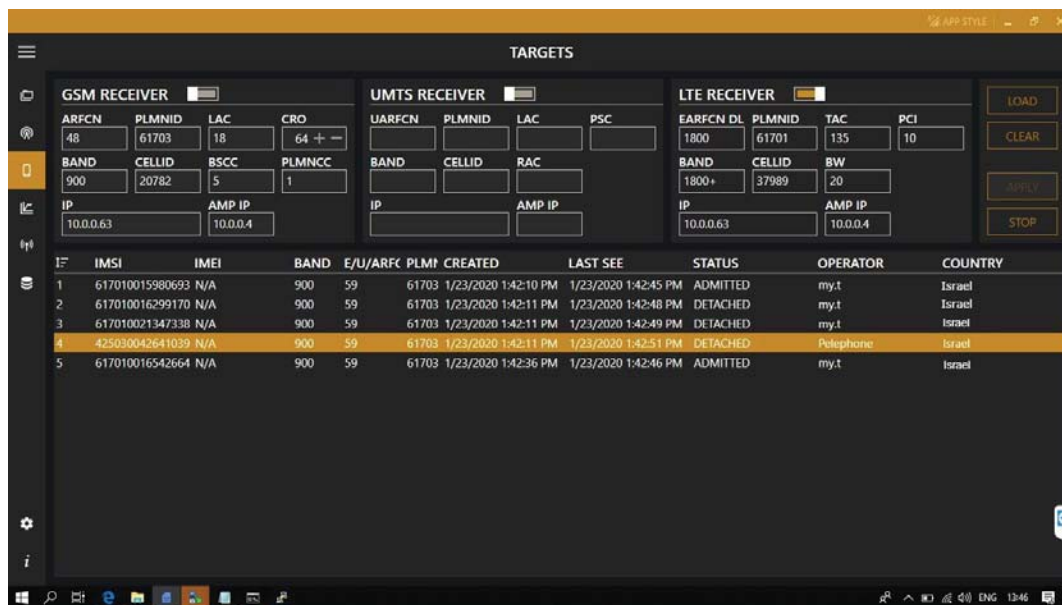
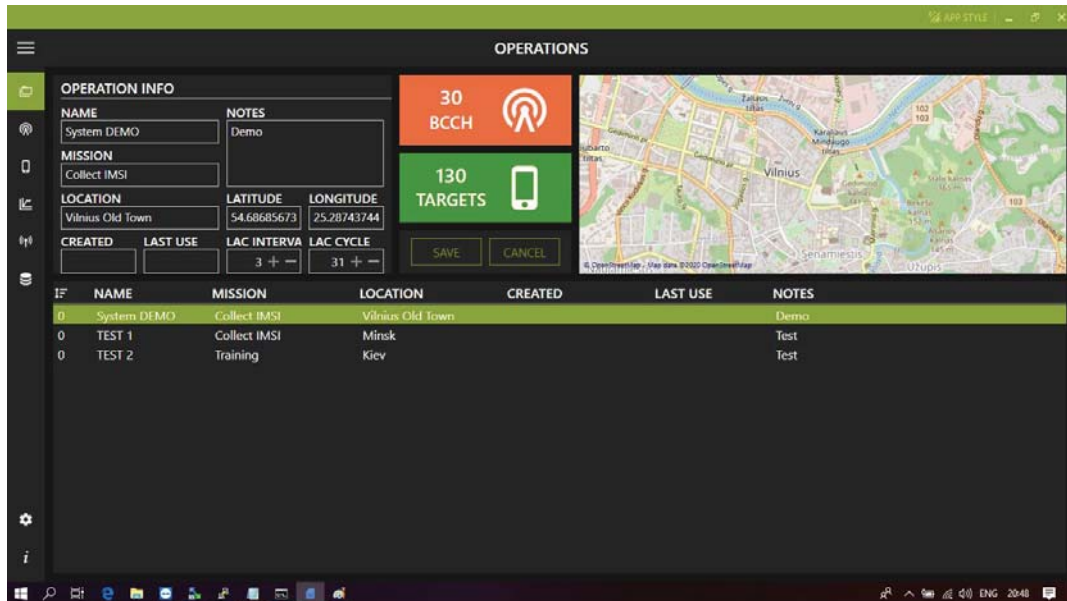


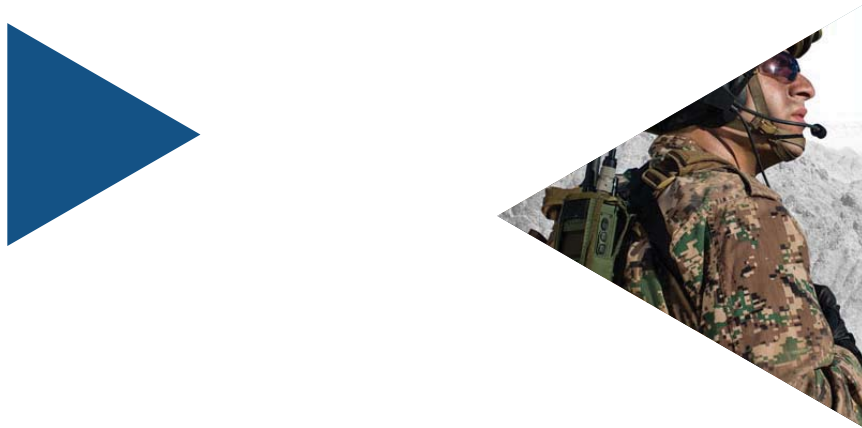
Fig. 2 Graphic user Interface

Note: Pictures are for illustration purpose only.

2. TECHNICAL SPECIFICATIONS SUMMARY

Electricity power	
Power Supply	Input 110-220VAC output 28VDC
RF Characteristics	
Modules	3 or more SDR cards
Antenna	External – Omni-Directional and High Gain Directional
Power Amplifier Protectors	Isolator. Full VSWR protector Over Heat – Thermal protector Over Current protector
Rx Sensitivity	-92 - -110dBm
TX PWR	±40dBm nominal amplification
Receivers Sensitivity	-110dBm
Cellular technologies	
Frequency Band	BTS: two bands of standard GSM frequencies NODEB: two bands of standard UMTS frequencies eNODEB: two bands of standard LTE frequencies
Air Interface Standards	GSM ,UMTS and LTE
Concurrent interceptions	4 simultaneous calls (basic version)
Deciphering unit	5.1 real time deciphering server. Response time < 2sec
Physical Data	
Case type main unit	Pelican iM2620 or similar case
Dimensions Pelican model	Exterior (LxWxD) 53.8 x 40.6 x 26.9 cm
Weight Pelican model	Approximately 20kg
Environment of operation	
Operating Temp	-10°C - +55°C
Humidity	5% - 90%

*Specifications are subject to change without prior notice



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