CC5500 FOR TACTICAL COMMUNICATION INTELLIGENCE IN WIRELESS NETWORKS
IMSI CATCHER WITH DF, AREA SURVEILLANCE, MOBILE SERVICE BLOCKING AND INTERCEPTION CAPABILITIES IN PORTABLE AND VEHICLE MOUNTABLE FORMS

KEY FEATURES

- Versatile tactical COMINT tool for 2G (GSM), 3G (UMTS) and 4G (LTE) networks Supports IMSI catching from 2G, 3G and 4G networks
- Detailed map view for real-time catch location monitoring in 2G and 3G
- Intuitive map assisted DF function for locating target mobile in 2G and 3G
- An accurate manual DF for the targets in both 2G and 3G including logging of the DF measurements for post analysis
- Interception of the calls (including DTMF tones) and SMSs supporting GSM A5/0, A5/2 and A5/1
- CCporta platform for unnoticeable use equipment hidden in the backpack or trolley CC rack mount platforms for flexibility and scalability in vehicle mount use adapts automatically to the surrounding network
- Works also in places with no network coverage
- User configurable target mobile categorization
- Remote operation with a smartphone or a tablet over secured Wi-Fi connection
- Configurable behavior in case of emergency call attempt detected during catching
- Offline Catch Analysis tool for investigating the captured data also separately on your own PC

OVERVIEW

The mobile phones are used more and more in planning and execution of organized crimes and terrorism. The 2G (GSM), 3G (UMTS) and 4G (LTE) networks are designed to protect the security of the communication and the subscriber identities. Increasing use of prepaid SIM cards makes the identifying of the target at lawful interception (LI) points more complicated.

The CC5500 is a versatile tactical COMINT solution gathering mobile phone information directly and unnoticeably from the air enabling monitoring the presence and activities of the mobiles in that location. It enables e.g. IMSI/IMEI/TMSI information gathering, direction finding of the target mobile phones, interception of the calls and SMSs (in GSM), the area surveillance against unauthorized mobiles and the blocking of the mobile services selectively or from all the mobiles. The collected information can be effectively analyzed real time or later off-line.

In addition to the stand-alone use, the ability to correlate the person to the mobile device / SIM card helps the LI point based operations. The detailed map view and the powerful map assisted DF function accelerate finding the target and facilitate vehicular DF operations in an optimal way. You can choose both portable and rack mount hardware for the CC5500. The CCporta can be carried unnoticeably in a backpack or cabin size trolley. Still, it also supports rack mounting. The CC rack mount solutions can be installed e.g. into a transportable 19” rack box and use in vehicle or stationary installations. You can also enhance the system with the interception package including CCic-1, CCic-hub and CCic-A51 units. Please see the individual CC platform spec sheets for more information on each choice.
OPERATING PRINCIPLE IN SHORT
The CC5500 is a tactical active device which establishes a temporary fake cell imitating a real cell in the network. The mobile phones captured by the fake cell communicate with it by providing identity information before the mobiles are returned back to the real network. The coverage of the fake cell can be controlled by adjusting the transmit power and by choosing directional or Omni-directional antenna. In map assisted DF the Omni- directional antennas are used. The active interception is done using man-in-the-middle approach which allows the best control for communication of the target(s).

ID CATCHING
The CC5500 scans the IMSI and IMEI information of the mobile phones within the area covered by its fake cell(s). It also stores the TMSI that the mobiles had before getting captured. The GPS location of the CC5500 is stored for each catch event to assist with post data analysis. During the catch mission, the Activity Monitor helps in concentrating on the essential (figure 1): mobiles seen before in other missions/tasks, defined targets, wanted mobiles, unauthorized mobiles or blocked mobiles. At the same time you have also chance also to follow all the catch events in real time from the Catch Analysis.

The intuitive CC5500 Configurator allows you to define the way how the CC5500 categorizes and handles the mobiles. The highlighting colors and optional audio alarms can be set for each category individually to notice target mobiles easier when they are captured. The catch results can be analyzed and filtered over multiple catch tasks in the missions in real time during the mission and also offline after the mission. The Catch Analysis application can detect SIM card changes and multiple occurrences of the certain subscriber or equipment identity.

DIRECTION FINDING (DF)
In the DF operation the CC5500 creates a connection to the target mobile without giving indication to the target mobile user. When the directional antenna is turned towards the target a visual histogram indicates the signal strength of the mobile. Also, the approximation for the distance to the mobile searched is shown. It is possible to have 8 simultaneous targets in 3G operation. In 2G operation you can follow 8 targets when using SDCCH and 6 targets when using TCH as a channel type during DF.

MAP VIEW AND MAP ASSISTED DF
The new optional map view in CC5500 brings the catch experience to a completely new level. Tactical planning of the operation is easier when you can see your CC5500 location on the detailed map. When the predefined 2G or 3G target mobile is captured, you can see its estimated distance and the map assisted DF function gradually highlights the target location. This feature significantly improves especially the vehicular operation with the CC5500. Being based on OpenStreetMap (© OpenStreetMap contributors) the CC5500 Map View is operationally very cost effective: you can download the map data for your mission free. The essential target related technical data can be shown in the map view.

The map assisted DF function is designed to operate with Omni-directional antenna(s). This makes the installation into a vehicle easy because there is no need for special directional antenna systems.

AREA SURVEILLANCE
With the CC5500 you can create a safety zone to automatically get a visible and/or audio alarm if an unauthorized mobile enters the zone covered by the CC5500. The mobile identities of the intruders are shown in the Activity Monitor and in the Catch Analysis trace.
**BLOCKING** (OPTIONAL) The CC5500 can be set to deny the use of mobile services from all 2G and 3G mobiles in any given operator’s network within the operating range of the CC5500. The denial of service can be also done by selectively using a list of blocked mobiles or allowed mobiles.

**INTERCEPTION** (OPTIONAL) The CC5500 can be used for intercepting 2G calls and SMSs in A5/0, A5/2 and A5/1 encryption modes. The 3G mobiles can be dropped to 2G before the interception. The interception package includes 1...4 CCic-1 target interception unit(s), CCic-hub for distributing the USB and power connections, headset and batteries and optionally CCic-A51 for deciphering A5/1 encryption. See more information from CCic-1 and CCic-hub spec sheets. During the interception of the call the conversation can be listened real time stereophonically and recorded to a WAV file.

The amount of simultaneous call recordings depends on the amount of CCic-1 units in the system. The content of the SMSs can be stored and it is also possible to replace parts of the message before delivering them to original receiver. The versatile call management enables automatic prevention or forwarding of the calls and SMSs to another number with rules based on e.g. the original number. Also the phone number (MSISDN) query for the target and use of the target mobile’s microphone for remote listening are included in the CC5500 interception.

**AUTOMATIC SETUP**
The CC5500 can automatically configure itself to adapt to the network environment of the selected operator(s) in all network technologies. There is no need for deep cellular network knowledge. You only need to select the operator network in CC5500 Cell Manager. However, advanced manual configuration is also possible.

**FEATURES AVAILABLE IN 4G**
All CC5500 applications, excluding catch sequencer/scheduler, DF and Map view, support 4G operations. CC5500 LTE solution enables user to perform IMSI catching and post & ‘seen before’ -analysis.

**HSS** **CC PLATFORMS FOR CC5500 is running on the CC platforms.**
The CCporta hardware (Figure 3) includes one to three 2G carriers or two 2G carriers and one 3G carrier in a compact portable platform. The units can be chained with Ethernet cable to extend the capacity e.g. to operate on two different 3G bands. One unit will act as a master from which the system is controlled and results collected. The other unit(s) work as a capacity and/ or band extension.

The rack mount CC5500 solution can be built from CCr 3G and CCr 2G units (Figure 4). These ruggedized units with spring suspension are specifically designed for demanding conditions and they offer the RF power capacity needed in vehicular operations. The combined control and view of the mobiles captured from 2G and 3G networks from several operators simultaneously brings the performance and value of IMSI catching system to a completely new level.

The CCflexi 4G platform offers a powerful solution to perform COMINT operations in LTE networks. The CCflexi is a rack mount solution that utilizes NSN flexi eNodeB. CCflexi offers an unbeatable range and reliability to the operations.

Other the hybrid solutions combining [for instance] the CCporta boosted with CCbrutepower - and CCr 2G & CCr 3G & CCflexi 4G, form a perfect solution for operations where both the higher power in vehicular use and portability in pedestrian use are required.

Bands supported:
- **2G:** 900 MHz, 1800 MHz, 850 MHz, 1900 MHz
- **3G:** 2100 MHz, 900 MHz, 1900 MHz, 850 MHz, AWS 1700/2100 MHz
- **4G:** 1800 MHz, 2600 MHz, (ask support for 800 MHz)