The Cellular Interceptor
CC2800 Series
Operational Parameters

- The Target Mode enables the user to direct cellular interception by variables such as the IMSI, TMSI, or cellular phone number of the suspect. In most scenarios, the user has some preceding intelligence about the suspect in question (the TARGET) under investigation.

- When the user wants to intercept, monitor, and or record the Target, the user may possess the target's actual phone number, the target's IMSI, TMSI (the temporary number assigned instantly at the time of the communication), or the IMEI in some cases. Our Cellular Interceptor, the CC2800 series, incorporates detection variables that let the user obtain some or all of these parameters when observing how they are transmitted over the GSM Network.
Detection

• Once the CC2800 detects the variables and confirms they have intercepted the target, they can monitor the call by listening in, record the call and listen simultaneously (in real time while it happens), or discard the call.

• Optional Feature: Signal Strength Detection
• The CC2800 incorporates the ability to monitor the signal strength of the mobile handsets it captures. This is demonstrated in the Random Mode as well as the Target Mode. This involves a large set of parameters, viewed on the Graphic User Interface, indicated by the reception of transmission data between the base station and the target handsets. Parameters include the actual signal strength variables calculated from the correct data received, as well as the error rates involved. This metrical information comes from the phone handsets, and gives the user the ability to approximate how strong the signal is being received by the Cellular Interceptor.
CC2800 Series GUI

• Graphic User Interface: Handover analysis for targets on the move
• The graphic user interface also shows the number of handovers that occur between each cellular base tower. In one particular scenario, a cellular handset was observed while traveling in-between cells. From the beginning of the communication structure until the end, the handset completed a total of 68 handovers to the nearest base tower. This indicates the Cellular Interceptor's ability to track a 49 minute communication sequence over a great distance while the target was in motion. In other words, the narrow band receiver telemetry built into the system's architecture follow the DL call exactly the same way the actual target phone would, with the handovers included.
SMS Interception

• As an SMS intercept, the system can extract incoming and outgoing SMS messaging in virtually all languages.
Configuration:

• The basic cellular intercept configuration is built on a 16 Channel COMINT receiver platform. It lets the operator listen to multiple conversations in a specific cellular zone. Using the control software to supervise the communication capture, the functionality of each channel can be monitored and adjusted at will. This Managerial foundation can assign each and every resource (The resource being the narrowband transceiver telemetry) to any task the user can think of in the course of monitoring calls. This can range from control channel monitoring to any other logic channel.
The data from each channel can be observed through the graphic user interface, which stores incoming communications in real time. This data would consist of signaling, identifier parameters, and PCM.

The system has a database of targeted numbers that the user can access. The user can add or modify the data at any time, either manually or automatically record the cellular call's parameters.

In various instances, the user can detect targets by sending out Silent SMS data. This feature involves the discovering of information about target without those targets seeing any activity, such as IMSI or the Telephone Number's TMSI number (or other identification parameters that also will enable interception.) Once you have one or more of those identifiers, you can conduct interception with great ease. This procedure is covert in nature, and will not be visible to the user (no audio or visual alerts will be experienced). Once the silent SMS has been sent, the Cellular Interceptor can identify the target phone and capture its voice and data without actively forcing it to register.
Configuration (continued)

• In the Target Mode as well as the Random Mode, the Cellular Interceptor will also intercept SMS messages.

• While the use of directional antennas extend the ability to intercept a specific direction with more focused coverage, an omni-directional antenna can also be used; an omni-directional antenna will produce more random targets to focus on.

• The Cellular Interceptor is IP driven. This means it needs to have Wi-Fi or through the use of a cellular modem, the system can process the audio data as well as SMS data of one or more interceptors.
Spider Web Management

• Using larger configurations, our central management application can interface with a number of front end Cellular Interceptors, each located and strategically positioned at alternate locations.

• This connection can be done either through a landline ethernet, or a wireless modem. The benefit of this "Star Topology" is for the refined reception of the Uplink path of the communication process, as well as the seamless coverage of the traffic in a given area.

• SPIDER WEB METHOD: Through the Wifi network connection process, multiple Cellular Interceptor receivers can be spread throughout an area, with omni-directional antennas, in order to produce an overlapped coverage area, increasing a higher volume cellular interception targets. This Random Mode search feature comes in handy if the user is conducting a city-wide investigation and does not have the target details available.
The UPLINK and DOWNLINK Process:

- With regard to range capabilities, the Cellular Interceptor can conduct communication monitoring of ranges up to 10 KM depending upon environmental factors. This is evident in the downlink interception process, which is what is broadcast from the cellular towers. The uplink interception capability covers less of a distance, as this is derived from the broadcast by the mobile phone handset (if handsets were as powerful as a tower, the broadcast distances would be 1,000 times greater).
Sensitivity & Distance

• The sensitivity of our Cellular Interceptor utilizing the Narrowband reception telemetry is similar to the reception (if not better than) of a regular cellular phone. Our method is far exceeds any Wideband system available to Intercept the DL component of a call, from any given area, giving our ability to see nearly 70 Base Stations, on average. Most Wideband systems would be able to 'see' or perceive approximately 30 Base Stations on average.

• From that perspective, one can expect to intercept the DL component of a call from very far away, i.e., 10KM or more would not be out of the ordinary.
Active vs. Passive attribute

• In relationship to an active system, which forces a call to go through its internal architecture before completing its path to the service provider network (pretending or simulating that it is a legitimate base station), our system would hold the DL component long after the active system dropped it.

• This is because the active system would hand over the call back to a legitimate cell as soon as the call / target moves away from the immediate area of the active system (maybe a few hundred meters).
Uplink & Distance:
Environmental Factors – Expansion Alternatives

• On the Uplink side, our CC2800 Interceptor can reach a distance of a few hundred meters to well over a Kilometer in an urban area depending upon the environmental factors (building composition, height, RF traffic, etc). A user can expect much better results in rural areas.

• For complete downlink and uplink interception, we recommend using our multiple monitoring deployment scenario found in our SPIDER WEB Interceptor. In this instance, multiple cellular interceptors participate in a network and feed the operator all encountered audio and data interception variables, all viewable on a single graphic user interface.
Tracking Scenario

• If the user supplies us with a Digital Cell Map from the local service provider, we can integrate that map into the software of the Cellular Intercept system in order to see the location of the suspect.

• This form of cellular tracking is new and is also dependent upon utilizing the map from the local service provider. Please note this is not a GPS mapping technology. It is based on cellular phone mapping produced by carriers for their service people.
For more information, Contact Us:

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