



June 11, 2010

Richard J. Orsulak
Emergency Planning and Public Safety Division
Office of Spectrum Management
National Telecommunications and Information Administration
U.S. Department of Commerce
1212 New York Avenue, NW., Suite 600B
Washington, DC 20005

RE: Docket No. 100504212-0212-01 - Preventing Contraband Cell Phone Use in Prisons

Dear Mr. Orsulak,

BINJ Laboratories, Inc. (BINJ Labs) is an innovative technology company, made up of engineers with extensive signal detection/tracking and electronic counter measures experience. The company is committed to developing a cost effective, comprehensive and maintainable solution to the cell phone contraband problem.

Detecting, locating and confiscating cell phones is the best current and long term solution that would significantly reduce or eliminate cell phone use without negatively affecting commercial wireless communications and public safety services. Signal detection technology will work in all applications, and environments regardless of location, type of facility and/or make and model of cell phone.

This solution will allow for the complete eradication of illegal cell phones within correctional institutions and will also allow the facilities to investigate how the cell entered the facility and provide them the ability to take the corrective measures to prevent cell phones and other contraband from entering in the same manner.

Managed service has promise and this type of technology provides the opportunity to offer additional services to the corrections industry. However, to be a viable solution in corrections, this technology will need to be cost effective and be able to detect and control, at all times, every type of wireless communication device.

Jamming cell phones is not realistic, cost effective and/or viable without negatively affecting commercial wireless communications and public safety services.

Your organization has put out a set of thoughtful questions and I will address the ones which involve cell phone detection and location tracking technology, in order.

Sincerely,

Joseph S. Noonan
President/CEO
BINJ Laboratories, Inc

Responses:**1. Are these characterizations accurate and complete?**

Yes, your characterizations are accurate; however we'd respectfully expand the following statement: *"These systems can only detect a cell phone when it is in use--either placing or receiving a call."*

Cell phone detection systems can also detect and locate the cell phones during (1) turn-on, (2) turn off, (3) in-conversation, (4) in standby and (5) when the cell phone re-acquires the tower, which happens frequently in a prison environment where cell coverage may be sporadic.

2. What specific types of managed access and detection techniques are available?

BINJ Laboratories has created an integrated cell phone detection system. This system is comprised of set of signal detection sensors with directional and/or Omni-directional antennas.

- The sensors are designed with the sensitivity to work within the water chases and/ or ceiling/wall mounted.
- The sensors communicate wirelessly (802.xx) and/or Cat 5 Power over Ethernet (POE) cabling for ease of installation.
- Each sensor reports back to a central interface and display unit.
- The system's software determines the location of the cell phone detected by analyzing the data received from each sensor.
- An alert is routed to the main console in the control room by both visual and audible alarms.
- The correctional officers know exactly where to search.
- The system records the time, the type and location of every cell phone detected.

3. What risk does each system pose to legitimate cell phone use by the general public outside the prison?

Cell phone detection systems do not pose a threat to legitimate cell phone use by the general public outside the prison.

4. What risk does each system pose to public safety and government use of spectrum?

Cell phone detection systems do not pose a risk to public safety and government use of spectrum.

5. Are certain systems more suitable for certain prison environments or locations?

Cell phone detection systems are suitable in all prison environments and prison locations.

6. To what extent does the installation of each system require a customized approach for each prison?

Each prison will receive a walk thru to determine the ideal placement of the sensors. The user interface is then customized to the layout of the facility so that the software screens display the exact facility maps.

7. How disruptive is the installation process?

Minimal. It is similar to installing CCTV and/or smoke alarm systems.

8. What approaches can be used in the implementation of systems employing detection techniques?

Cell phone detection systems instantaneously display and record the type, time, and location of all cell phone communications within the facility. Each agency needs to put together their own policy and procedures on how to implement and utilize the information.

9. How does each system provide for completion of critical calls or radio communications such as those from public safety officers (including use of handheld two-way radios) or 911?

Cell phone detection systems have no impact on communications equipment and/or facility technology.

10. What ability does each of these technologies possess for upgrades to include new frequency bands, technologies, modulation techniques, etc. as they are introduced into the marketplace?

One of the advantages of cell phone detection technology is its ability to adapt to new frequency bands.

All production sensors will have additional capability to plug in new frequency bands. The system analyzes the frequency spectrums programmed and reports all signal detected within the facility regardless of the technologies and/or modulation techniques used by the service providers.

11. How quickly can they be upgraded?

Each production version will have the capability of detecting all FCC approved frequency bands as well as those frequency bands approved, but not implemented at time of delivery. These will be remotely upgraded via a Software modification.

New frequency bands, not anticipated at time of production, will require a frequency band plug-in module to be developed. The deployment of this module will occur at the same time or before the service provider's implementation timelines.

12. Do, or will, the technologies identified above effectively cover all of the bands likely to be used for commercial wireless services and how do, or will, they do so?

As, mentioned previously, one of the advantages of cell phone detection technology is its ability to adapt to new frequency bands. We can detect, triangulate and display the location of any wireless communication device present within the facility including 462--467 MHz band.

13. Specifically, which frequency bands does each approach currently best address, and which could they best address in the future?

Signal detection and location tracking covers all frequency bands.

14. How can the technologies prevent an inmate from communicating with a device employing proprietary technology (e.g., SMR radios)?

Devices employing proprietary technology do not impact our cell phone detection system's ability to triangulate and report the position of the cell phone.

15. Will the technologies deal with phones that plan to operate in other bands where new services will be offered in the future, such as in the 700 MHz band?

As offered above, one of the advantages of cell phone detection technology is its ability to adapt to new frequency bands. We can detect, triangulate and display the location of any wireless communication device present within the facility including 700 MHz band.

16. What will be necessary to extend the capabilities of the technologies to new bands (new hardware or software, new antennas, agreements, etc.)?

Both software and firmware updates will be required. If a new frequency was not anticipated during the production of the sensor, a hardware plug-in module may be required, depending on the frequency.

17. What factors impact the cost of implementing each of the technologies as described above?

Cell phone detection system costs are dependent on:

- the price of the sensor
- the number of sensors
- maintenance and software/hardware support requirements
- the cost of installation and
- the support hardware and software infrastructure which integrates the sensors.

All hardware in the BINJ system is commercial off the shelf (COTS) products (computers, servers, switches and access points), except for the sensors. For signal detection technology, the number of frequency bands coming down the road is probably the biggest factor to the overall cost of the solution.

18. Are there on-going or recurring costs associated with each?

Software updates and technical support.

19. To what extent will installation costs vary in light of the particular characteristics of each prison (e.g., geographic setting)?

Geographic setting does not affect installation costs. However, characteristics of each prison including the age of the facility, access to conduit and power sources and type of facility and design of the facility will impact installation methodologies.

Having sensors with high sensitivity which communicate wirelessly (802.xx) and/or Cat 5 Power over Ethernet (POE) cabling will mitigate the varying installation costs due to the characteristics of the particular facility.

20. What characteristics are most likely to affect costs?

The size of the facility and the desired location accuracy (# of sensors needed).

21. What are the ancillary costs for each type of approach (e.g., maintaining network connectivity for managed access systems, resources required to physically locate the phone for detection/location systems such as canines, staff time, etc.)?

The Command and Control Center of a facility is manned 24x7, and depending on the facility and agency, most units are manned or have roaming patrols. The largest ancillary cost for a detection/location system is:

- the staff required to confiscate the cell phone
- the internal affair staff to investigate how the cell phone entered a secure facility
- the administrative staff to develop and implement preventative policies & procedures and
- administrative/legal staff to prosecute individuals if necessary (i.e., Inmate, vendors, visitors and/or trusted personnel).

22. Are there typical costs or a range for each, and if so, what are they?

In its current configuration sensors cost \$550/sensor.

Hardware and software for a 500 cell facility with location resolution down to an inmate's cell costs \$350,000. Costs will vary depending on the type of facility (i.e., dormitory style, linear, pod, modular).

23. Is training required for prison staff to properly operate the equipment?

Very little training of staff is necessary to operate integrate detection system.

24. What staff costs are associated with each technology?

Staff costs include:

- staff required to confiscate the cell phone
- the internal affair staff to investigate how the cell phone entered a secure facility,
- the administrative staff to develop and implement preventative policies & procedures and
- administrative/legal staff to prosecute the individuals if necessary (i.e, inmate, vendors, visitors and/or trusted personnel).

25. How do managed access and detection technologies locate a cell phone caller?

Cell phone detection systems use an array of sensors throughout the facility to triangulate the location of a cell phone when it is transmitting. The larger the array of sensors, the better the location accuracy.

26. What software and hardware is needed?

Hardware includes: signal detection sensors, a central control unit (computer system/monitor), sub-stations (2U/4U servers, depending on the size of the facility and layout), communications via access or switches (POE), and Cat 5 cabling.

Software includes: sensor sub-station and central console software.

27. How accurate are detection technologies?

Accuracy is determined by the number of signal detection sensors and the type of facility. With newer facilities which utilize water chases, the location resolution is down to a cell unit.

Some facilities have cells which sit at the end or the beginning of tiers or units where there are no water chases. In these cases, the accuracy is down to a couple of cells.

In older facilities where they do not have water chases or water chases are steel encased, or the tier is steel with back to back cells, the accuracy is diminished to a set of cells.

Age of the facility and composition of the facility wall (i.e., rebar, steel, thickness) affect the accuracy.

28. Do managed access and detection technologies have the capability of providing intelligence-gathering information for prison officials, and if so, what type of information?

The BINJ cell phone detection system will provide:

- real-time and historical data to the facility
- the type of cell phone
- time of detection and
- location of detection.

BINJ can also integrate with a managed service (i.e, picocell and other technology) to provide the cell phone identity.

29. Does each site need specific RF engineering for each of the approaches?

A site does not need specific RF engineering analysis to install cell phone detection technology.

30. How do the technologies allow authorized users, including 911 calls, to be protected?

Cell phone detection systems do not block or deny cell phone use.

31. How are different modulation schemes or channel access methods (for example, Global System for Mobile Communications--GSM, or Code Division Multiple Access--CDMA) handled for each category and does the solutions depend on the type of access method that the wireless carrier is using?

Modulation schemes and/or channel access methods do not impact the BINJ cell phone detection system's ability to triangulate and report the position of the cell phone.

However, integrating the system with a managed service denial system, picocell, carrier technology, and/or other technology which provide the ability to determine the cell phone's identity, are dependent on decoding modulation schemes. They also will impact and require multi-decoding capability. This may require additional licensing and agreements.

32. Is there a need to differentiate between voice and data, such as text messages, and are the technologies discussed above effective against data use by prison inmates?

No. Cell phone detection systems do not need to differentiate between voice and data, such as text messages, to detect and locate the cell phone.

33. Does shorter air-time use from text messaging present problems with detection and/or capturing the call and ultimately locating the phone?

Shorter air-time use from text messaging does not present a problem with the BINJ cell phone detection system.

34. Will the technologies identified above be effective against high-speed, high-capacity data formats, such as Long Term Evolution (LTE) for devices that are expected to operate in the 700 MHz band?

Yes. Cell phone detection technology is effective against high-speed and high-capacity data formats, such as Long Term Evolution (LTE) for devices that are expected to operate in the 700 MHz band.