



# TSD Threat Book

ComSec LLC's Technical Surveillance Device (TSD) Threat Book was developed as a guide to eavesdropping devices known to be in use worldwide. While the book is not an exhaustive reference of all known technical surveillance devices, this threat book does present the reader with a sampling of devices, device features and possible uses of the devices for eavesdropping purposes.

We are hopeful you will find our TSD threat book a useful guide. Please share the publication with colleagues in your organization to build awareness of the possible threats and surveillance techniques.

New TSD threats emerge frequently. So, ComSec LLC's threat book will be updated and circulated to our corporate Assurance Option clients periodically as new threats emerge.



## Ghost Audio Intercept:

Manufactured By: HSS Development



### Mode of Operation:

The eavesdropper sends a command signal to the Ghost Transmitter, activates the surveillance transmitter function, and the eavesdropper receives the covert audio surveillance recordings via Wi-Fi.

### Features:

- 120 hours of continuous recording time on internal battery power.
- Internal flash memory stores conversations (up to 12 days of recording time).
- High-speed data transfer (approximately 5 minutes to transfer 24 hours of audio without loss in sound quality).

### Collection Information:

The Ghost Audio Intercept can record audio for hours to days, and retrieves the data via Wi-Fi, so there is no need for the eavesdropper to return to the device to recover the audio data files.



Photos By: HSS Development

## Bluetooth Microphone Systems:

Manufactured By: Motorola/Sony/etc.



Photo By: Motorola

### Mode of Operation:

Bluetooth technology is used primarily to establish wireless personal area networks (WPANs). Bluetooth microphone systems include baby monitors, wireless camcorders, headsets, etc. They transmit and/or record conversations via short-range radio frequency (RF) communication.

### Features:

- Many Bluetooth microphone systems have an effective range of up to 100m.
- The systems transmit and/or record conversations.
- Battery life is several hours and batteries can be recharged.
- Sound quality is usually exceptional, particularly for camcorder microphones.

### Collection Information:

The devices have built in security functions, but the eavesdropper can intercept transmissions via denial of service (DoS) attacks, MITM attacks, message modification, resource misappropriation, and other vulnerabilities that are bluetooth specific. Once intercepted, the eavesdropper can listen to and/or record the conversations.



Photo By: Sanyo



## Digital Spread System:

Manufactured By: DEM Solutions



### Mode of Operation:

Spread spectrum uses wideband, noise-like signals that are hard to detect, intercept, or demodulate. Additionally, spread-spectrum signals are harder to jam (interfere with) than narrow band signals. Frequency-hopping spread spectrum (FHSS), direct-sequence spread spectrum (DSSS), time-hopping spread spectrum (THSS), chirp spread spectrum (CSS), and combinations of these techniques are forms of spread spectrum. Devices that utilize spread spectrum technology include, but are not limited to, cordless telephones, two-way radios (walkie talkies), wireless Internet, wireless PBX and handsets.



Photos By: DEM Solutions

### Features:

- Good sound quality.
- Reduced cross talk interference.
- Signal is randomized, so only the receiver having the exact same pseudo-random sequence and synchronous timing can de-spread and retrieve the original signal.
- Harder to jam.

### Collection Information:

Collection of information from spread spectrum devices is possible where the security features of the device have not been implemented correctly, or the device does not utilize frequency hopping digital spread spectrum technology.

## Telephone Line Simulators:

Manufactured By: Tellysystem Communications Ltd.



### Mode of Operation:

A telephonic back-up system that guarantees the execution of a phone call and simulates a PSTN line in case of not availability of the PSTN wired telephone line. The device works over the GSM network, and forwards SMS and/or voice message and/or Contact ID to the user and/or the monitoring station if a signal reaches the input.



### Features:

- The module can be programmed via SMS, PC (USB or Bluetooth) or Android.
- The battery pack allows the device to have a signal in a power failure and to operate for 4 hours.
- Forwards incoming SMS to a pre-programmed number, warning message of the SIM expiring date and maintenance warning. The memory of the module can store 16 000 events.



### Collection Information:

When used for covert purposes, the unit can redirect phone calls and voice mails, and to control anything managed by the telephone line simulator, (e.g. open doors, garage doors, turn off alarms, etc.)

Photos By: Tellysystem Communications Ltd.



## Micro IP Camera:

Manufactured By: Gedion Ltd.

### Mode of Operation:

This device is miniature in size, has hi-resolution live view with sound and video recording for later upload over the Internet. The device is a perfect solution for companies that need to control working areas, offices or when the device needs to be hidden in cars.



Photo By: Gedion Ltd.

### Features:

- Motion detection, schedule or remote command recording modes.
- Digital day and night modes.
- Pinhole or board lens.
- Can be connected to a network with a LAN cable or with 3G/Wi-Fi receiver.
- Andriod app supporting cameras live view and records view.

### Collection Information:

The camera can be used covertly to capture synchronized audio and video that can be uploaded to the Internet, recorded to an internal DVR with micro SD slot or connected to an NVR or DVR.

## Stealth Blackberry Q10:

Manufactured By: MIB Electronic



### Mode of Operation:

This stealth cellphone looks like a Blackberry, and has all of the functionality of a Blackberry, but it also contains a camouflaged 8 Megapixel miniature full HD camera. The unit can record audio and video, and can immediately send audio/video via GSM, UMTS, WLAN or Bluetooth.

### Features:

- HD Video Recording.
- Live Wi-Fi Streaming.
- 4G LTE Ready.
- Video and photo transfer (repeater function) via Wi-Fi, Bluetooth or email.
- 35 hours of video and audio recording capability.
- GPS tagging of pictures / Geo coating function.
- Audio & video recording time for at least 4 hours with one battery charge.

### Collection Information:

The cell phone can be left in plain sight and without causing suspicion. All the while, it's capturing audio and video that can be sent by several different common wireless technologies. The cell phone leaves no electronic footprint that can be detected beyond that of a Blackberry cell phone.



Photos By: MIB Electronic



## MicroWi:

Manufactured By: Gedion Ltd.



### Mode of Operation:

This unit is a mini voice recorder with built in Wi-Fi. It records high quality audio on a MicroSD card. All the collected data can be downloaded to a host computer using ad-hoc Wi-Fi connection or via Internet.

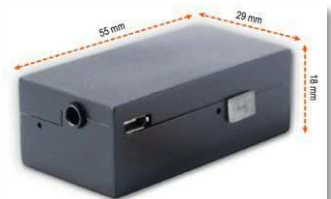
### Features:

- 120 hours of operation on one battery charge.
- 24 hours of audio surveillance can be downloaded in about 5 minutes.
- When not downloading, the transmitter can be turned off.
- Live listening over Wi-Fi.
- Unit can be scheduled to turn on and off.
- An optional 3G router-buffer can be supplied with MicroWi voice recorder making it possible to download the data over 3G mobile networks.



### Collection Information:

The unit can be used to record high quality audio remotely and the files can quickly be transferred via Wi-Fi. MicroWi cannot be easily detected with a field detector or radio monitoring system, so discovery requires a physical inspection since traditional TSCM electronic detection methods will not detect this unit.



Photos By: Gedion Ltd.

## Optical Microphones:

Manufactured By: Optoacoustics Ltd.

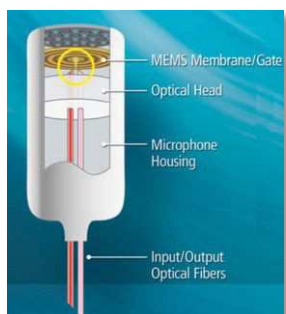


### Mode of Operation:

Microphones are constructed of a MEMs membrane and two optical fibers. The MEMS membrane vibrates and changes the intensity of the light from the incoming optical fibers to the outgoing fibers. The mechanism detects even the slightest change in membrane displacement. The result is clear sound and low self-noise.

### Features:

- Does not require any additional pre-amplifiers or amplifiers.
- Available for a variety of applications including wet environments, noisy environments, highly explosive environments, extended temperatures, extended frequencies, for weak sounds, 3D sound, secure environments, and remote monitoring.
- Delivered as a complete, plug-and-play system comprised of an advanced optical microphone attached to 10 meters of fiber optic cable, electro-optical unit, audio cable, DC power supply and carrying case.
- Guaranteed to perform flawlessly throughout its lifetime.



### Collection Information:

Units are convenient for collection of information because the microphones are small and can be disguised/hidden easily, specialty environments are no issue, and the microphones perform reliably.



## MAGAV-300 GPS Tracker:

Manufactured By: Gedion LT

### Mode of Operation:

GPS (Global Positioning System) uses satellites orbiting the Earth to communicate with specialized receivers on the ground. This GPS tracking system tracks time interval, travelled distance, course changes and combinations thereof. Tracker information is transmitted via SMS (text message), GPRS 10 class (2G and 3G cellular) or TCP/UDP Internet connections.



### Features:

- Shock, dust and water-proof body in accordance with IP67.
- Powerful magnets for quick installation.
- Detach alarm sensor.
- 5200mAh battery for extra long operating time.
- Motion sensor and timer based power saving modes.
- GSM module that can be turned on only for log upload at specific times (useful for avoiding detection).



Photos By: Gedion Ltd.

### Collection Information:

GPS trackers monitor movements to obtain personal or professional information. For professional vehicles, potential customers, suppliers, etc. can be identified. For personal vehicles, collected information can include the location of babysitters, schools, timing of after school activities, etc.

## Miniature HDTV Camera:

Manufactured By: AXIS Communications

### Mode of Operation:

AXIS P1204 Network Camera provides full frame rate HDTV 720p (1280x720 pixels) video in H.264 and Motion JPEG. Its tiny HDTV 720p camera is designed to blend in for discreet indoor monitoring. The innovative device includes a main unit and a separate sensor unit, enabling it to be mounted up to 8 meters (26ft.) apart. It can be mounted flat or angled on any surface, using the angled fastening bracket.



### Features:

- Power over Ethernet.
- Enhanced video motion detection.
- Detection of camera tampering attempts (e.g. spray painting).
- Can be mounted covertly behind a thin metal sheet.
- -4F to 122F operating range.



### Collection Information:

HDTV video hidden in conference rooms, executive or sales offices, executive secretarial desks, etc. can capture the arrival, departure and likeness of customers, potential customers, suppliers, ad copy, strategic plans, new designs, etc.

Photos By: AXIS Communications



## ProCon GSM:

Manufactured By: Telsystem Communication

### Mode of Operation:

The system is a contact controlled industrial GSM transmitter that forwards SMS and/or voice message and/or Contact ID to the user and/or the monitoring station if a signal reaches the input. The units can be used beside an alarm system, as an independent alarm system, for vocal alarm messages, gate, barrier, and garage opening, for house automation control (air-conditioning, heating, sauna, lighting), 230V control and sending notification and restarting and controlling servers.



Photos By: Telsystem Communication

### Features:

- SIM functions: forwarding of incoming SMS, warning message of the SIM expiring date, maintenance warning.
- Calendar of events: 16 000 event buffer (input, output, tamper, power failure, output control based on the caller).
- Strength of the GSM signal is checked and logged in every hour into a separate memory.
- The battery pack allows the device to have a warning message of power failure and to operate for 24 hours.
- Multiple SMS and full PC programming.

### Collection Information:

When used for covert purposes, the unit can be set to notify the eavesdropper of any "event", as well as control alarm systems, gates/barriers, house automation functions, servers, etc.

## Long Range Laser Listening Device:

Manufactured By: Argo-A Security

### Mode of Operation:

The Long-Range Laser Listening Device is designated for law enforcement and government use. It utilizes an invisible infrared laser beam to eavesdrop on a target. The device detects vibrations on a window glass that are caused by sound waves (speech) inside the room and transmits them back to the receiver.



Photos By: Argo-A Security

### Features:

- Effective Range: over 450 m.
- Transmitter operating time: approx. 10 hours continuous.
- Receiver Battery Life: 15-50 hours (depending on the adjusted volume).
- Voice Recorder: built-in and internally connected with the amplifier.

### Collection Information:

The device can be used to capture audio over long distances from outside the target area. The microphone is highly sensitive and provides excellent sound quality. It is also highly undetectable as the infrared laser is completely invisible to the naked eye.



## Coversnitch Lamp:

Device is Made with COTS Parts



### Mode of Operation:

The Coversnitch lamp can covertly listen in on conversations and then post them on Twitter. The system includes a Raspberry Pi mini-computer, a microphone, an LED and a plastic flowerpot. The device screws into a standard bulb socket from where it also draws power.

### Features:

- The device can be assembled in few hours with COTS parts that cost less than \$100.
- The system can upload any secretly captured audio via the nearest open Wi-Fi network, and sends it to Amazon's Mechanical Turk crowdsourcing platform.



### Collection Information:

Audio information can be captured and tweeted via Coversnitch's twitter account, where people can comment, retweet or favorite the post. Can this be adapted to other outputs? Time will tell.

## Cat 5 Cable w/ Embedded Microphone:

Manufactured By: Unknown

### Mode of Operation:

Visually, the device resembles a standard Cat 5 cable. However, the cable includes an embedded microphone. Using an audio demodulator, the eavesdropper can locate the signal and listen into conversations from a remote location within the facility. A GSM device located elsewhere in the complex can act as a "voice activated transmitter".



### Features:

- Uses minimal power, which it draws through the Cat 5 line.
- The cable retains all of the function of a standard Cat 5 cable.
- The device's only detectable output is audio, so it takes a trained professional who is aware of this type of device to detect it.



### Collection Information:

The device can be used in Boardrooms, executive offices, sales offices, secretarial spaces, etc. to capture valuable information. Since the device is indistinguishable from other Cat 5 cables, and it does not require recharging or retrieval of the device for collection of information, it is ideal for an eavesdropper who wishes to collect information discreetly over a significant length of time with a low likelihood of the device being discovered.





## Miscellaneous Devices:

WIFI Night Vision Light Bulb Security Camera HD 720P With IR-Cut: <http://goo.gl/DHvify>



- Use IR LED light, night vision distance 15 meters
- Accept local storage 2GB-32GB, storing 12days video files for 32GB Card
- H.264 compression, HD720P resolution
- Able to hear sounds
- Control 64pcs bulbs cameras in total
- Remote access by SmartPhones(Android)/ iPhone/ iPad/ Notepads/ Notebooks/ PC/ Mac- Double alarm alerts, email alert and mobile push alert.

Fire Sprinkler CCD Camera: <http://goo.gl/skFsjw>



- CCD lens offering 420 TV line quality
- Low light requirement of only 1 Lux
- 3.6mm lens offering 60 degree view
- Battery or mains powered
- Built in microphone

Exit Sign Spy Camera DVR 8GB: <http://goo.gl/Opl05c>



- No batteries required, plugs into standard wall outlet
- Exit sign is fully functional
- Motion activated and scheduled recording
- Motion Detection Area Masking
- Embedded time and date stamp
- Remote control operation
- MPEG4 file format
- Composite video out

HD and Audio Spy Pen: <http://www.viddler.com/v/6dc0f021>



- Records HD video and audio and snaps crisp still photos.
- Includes 4GB or 8GB Micro SD Card
- Simple PC Transfer Via USB
- Hours of Recording Time
- Files are instantly saved to a micro SD card