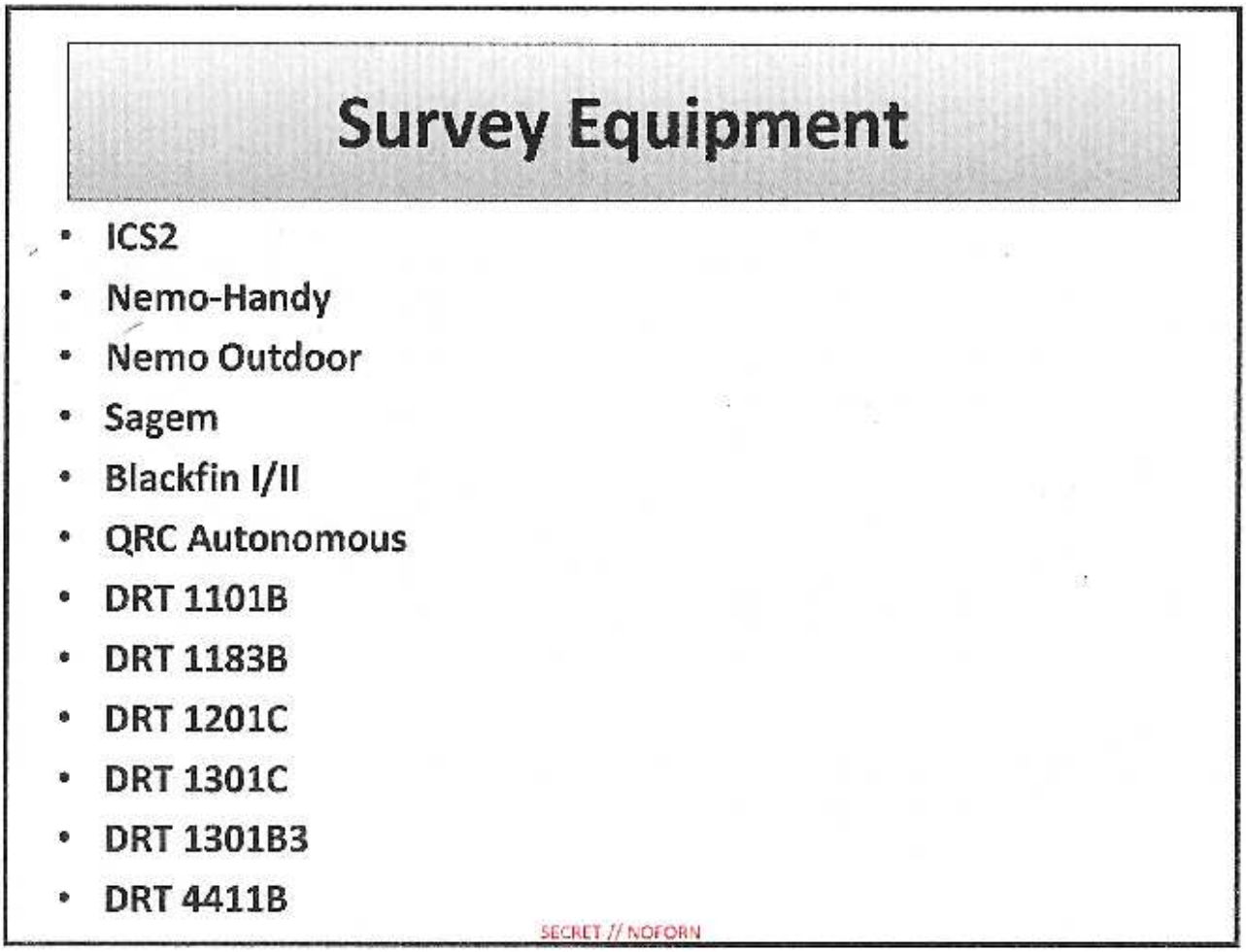
The Intercept_

DOCUMENTS

Government Cellphone Surveillance Catalogue

Dec. 17 2015 — 6:33pm



ICS2

Capabilities

Description: Integrated Collection System
- Cellular Survey Tool
- GSM and CDMA
- Combines scanning receiver and computer into a single device
- Capable of being operated remotely
- AC, DC, or battery operation

Limitations & Planning Factors

ICS2 Equipment Specific:
- Data logging on Removable CF card
- Designed for Mobile or Fixed Operation
- Software upgradable, with ability to add addition protocols
- Weight: 9 lbs
- Each protocol can be activated individually or simultaneously
- Requires laptop for remote desktop application for connection to survey device
- Battery provides ~4 hours of operation
- Requires Decode Pro 4 Software

Vendor: QRC Technologies
Protocols: GSM, CDMA(Band class 0, 1 and 5) WCDMA,
BOIP:
Cost: $195,000.00

Approval: Ground Force Commander pending designation of target

SECRET // NOFORN

Nemo Handy (N95)

Capabilities

Description:

•Cellular Survey Tool for testing mobile applications QoS/QoE and measuring the air interface of EGSM/ GPRS/ EDGE/ WCDMA/ HSDPA/ WI-FI 802.11/g wireless networks. It is complete with voice and video streaming quality MOS testing, cell and timeslot testing, and full application level metrics on voice and video calls.

Limitations & Planning Factors

Nemo-Handy Equipment Specifics:

- Can only record one network at a time
- Easy to conceal, although HS is not typical size/shape
- When the program is running, easy to see on the HS screen
- Does not give extended BA list

Vendor:

Protocols: HSDPA/WCDMA 2100, GSM/EGSM/GPRS/EGPRS 850/ 900/ 1800/ 1900

BOIP:

Cost: approx $11,500.00

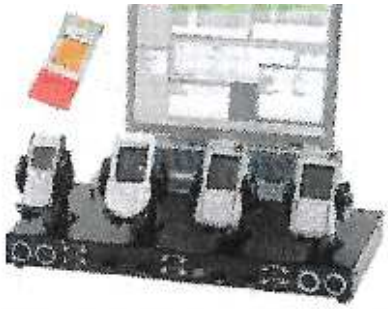
Approval: Title 10

SECRET // NOFORN

Nemo Outdoor

CAPABILITIES

•Cellular Survey Tool



- System includes
  - 2 GSM HS
  - 1 CDMA HS
  - 1 TDMA HS
  - Assorted Scanners
  - GPS Receiver
- Records cellular information for download to NEMO Analyze
- Can hook DTI scanners to laptop for simultaneous recording of numerous networks

LIMITATIONS & PLANNING FACTORS

Nemo Outdoor Equipment Specifics:

- Must be hooked to a laptop
- Using entire system can be cumbersome and difficult to conceal
- Does not give extended BA list
- Capable of running simultaneous multiple protocol survey

VENDOR:

PROTOCOLS: 900Mhz, 1800, 850, 1900, CDMA

BOIP:

COST: Approx $80,000.00

APPROVAL AUTHORITY FOR USE: Title 10

SECRET // NOFORN

Sagem OT488, 498

Capabilities

Description:

- Cellular Survey Tool Cellular Survey Tool for measuring the air interface of GSM/ EGSM/ GPRS wireless networks.

Limitations & Planning Factors

Sagem Equipment Specifics:

- Can only record one network at a time

Vendor:

Protocols: 850, 900, 1800, and 1900Mhz

BOIP: Part of MRT systems

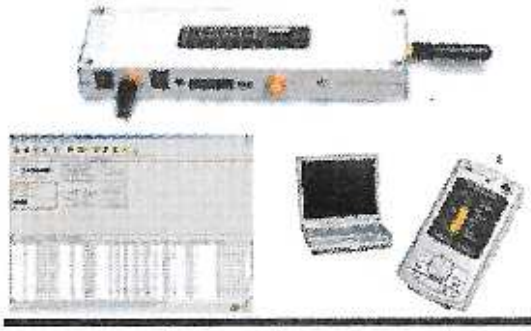
- Easy to conceal when not hooked to laptop
- When the program is running, easy to see on the HS screen
- Does not give extended BA list

Cost: approx $10,000.00

Approval: Title 10

SECRET // NOFORN

Blackfin I/II



Capabilities

Description: BLACKFIN II adds more performance and capability to the Blackfin system while keeping the same compact package. BF II is designed to body worn or packaged for concealed missions. Can be discretely configured and controlled via blue tooth with the Mobile controller. Quad Band interrogator that can conduct passive monitoring, survey, interception of GSM voice and SMS of a preloaded target lists, blanketed or targeted denial of service, and geo a given GSM handset.

Limitations & Planning Factors

Blackfin Equipment Specifics:

- Supported Bands: Model A (900/1800MHz)
- Model B (800/1900MHz)
- Low power for battery operation
- USB or Bluetooth connection
- Mobile controller provides limited control
- 5-7 hour battery life

Vendor: Harris Corporation Wireless Products Group

Protocols: GSM 850, 900, 1800, 1900

BOIP:

Cost: $75,000.00

Approval: Title 10

SECRET // NOFORN

QRC Autonomous/ Lighthouse

Capabilities

Description: QRC Autonomous is a wireless analyzer designed for wireless network data collection on GSM networks. It automatically detects control channel activity and logs System (GSM, 802.11, etc.) information. It requires no computer during the collection phase and is designed so that literally anyone can collect data and conduct analysis upon retrieval.

Limitations & Planning Factors

QRC Autonomous Equipment Specifics:

GSM US 800/1900MHz, GSM European 900/1800MHz, CDMA-2000 850/1900MHz

- Complete Decoding/Encoding of Control Channel Messages
- Software upgradeable
- Internal GPS
- Mapping
- Data Logging on Removable CF Card
- Rugged Design; Ethernet enabled

Vendor: QRC Technologies

Protocols: GSM (Multi-Protocol), CDMA-2000

BOIP:

Cost: $35,995.00

Approval: Title 10

SECRET // NOFORN

DRT 1101B

Capabilities

Description: The DRT 1101B provides a compact, yet powerful, surveillance capability against a variety of analog and digital wireless standards. The DRT1101B can be configured to support DF, digital voice intercept/recording, supports target lists of up to 10,000 entries, and has a flexible tuner configuration which provides frequency coverage of all bands of interest. Up to four tuners can be incorporated in unit.

Limitations & Planning Factors

DRT 1101B Equipment Specifics:

Maximum Number of Channels: 96 (half-duplex)
48 (full-duplex)

Frequency Coverage: 0.2 MHz - 3000 MHz

Compatible with: Windows 2000, XP

Audio Outputs:
16-Channel Analog
16-Channel Internal Digital Receiver
Stereo Headphones
5.1 Audio (optional)

Controlled from PC using Windows 2000/XP via Ethernet interface

User-friendly Graphical User Interface (GUI)

Integrated spectrum analysis tool

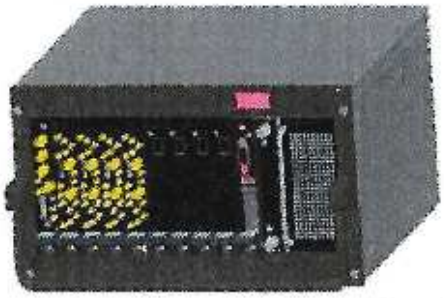
Vendor: Digital Receiver Technologies
Protocols: Multi-protocol
BOIP:
Cost: $78,850.00

Approval: Title 10/ 50

SECRET // NOFORN

DERIVED FROM:
DATED: 01 May 2006
DECLASSIFY ON: 07 January 2034

DRT 1183B



Capabilities

Description: The DRT 1183 provides a powerful surveillance capability against a variety of analog and digital wireless standards. The DRT1183 can be configured to support DF, digital voice intercept/recording, supports target lists of up to 10,000 entries, and has a flexible tuner configuration which provides frequency coverage of all bands of interest. Up to four tuners can be incorporated in unit.

Limitations & Planning Factors

DRT 1183B Equipment Specifics:

- Flexible tuner configuration provides frequency coverage of all bands of interest.
- RFT3: Dual channel transceiver VHF/UHF coverage from 2-3000 MHz; HF from 0.5 - 32 MHz
- HFT1: High performance HF receiver from 0.2-30 MHz
- MUT1: Microwave receiver from 0.2-8.5 GHz
- FPGA based Wireless Processor, WPM3, enables wideband signal processing. Can also generate a 32+ narrowband signals

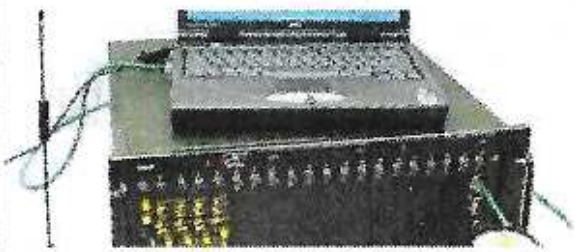
Vendor: Digital Receiver Technologies
Protocols: Multi-protocol
BOIP:
Cost:

Approval: Title 10/ 50

SECRET // NOFORN

DERIVED FROM:
DATED: 01 May 2006
DECLASSIFY ON: 07 January 2034

DRT 1201C



Capabilities

Description: The DRT 1201C provides a compact, yet powerful, surveillance capability against a variety of analog and digital wireless standards. The DRT1201C can be configured to support DF, digital voice intercept/recording, supports target lists of up to 10,000 entries, and has a flexible tuner configuration which provides frequency coverage of all bands of interest. Up to four tuners can be incorporated in unit

Limitations & Planning Factors

DRT 1201C Equipment Specifics

- Monitors up to 544+ half-duplex channels (32+ channels per WPM3).
- Software configurable to process various wireless standards.
- Processes multiple formats simultaneously.
- DF option available.
- Flexible tuner configuration provides frequency coverage of all bands of interest.
- RFT3: Dual channel transceiver VHF/UHF coverage from 2-3000 MHz; HF from 0.5 - 32 MHz
- HFT1: High performance HF receiver from 0.2-30 MHz
- MUT1: Microwave receiver from 0.2-8.5 GHz
- FPGA based Wireless Processor, WPM3, enables wideband signal processing. Can also generate 32+ narrowband signals.

Vendor: Digital Receiver Technologies
Protocols: Multi-protocol
BOIP:
Cost:

Approval: Title 10/ 50

SECRET // NOFORN

DERIVED FROM:
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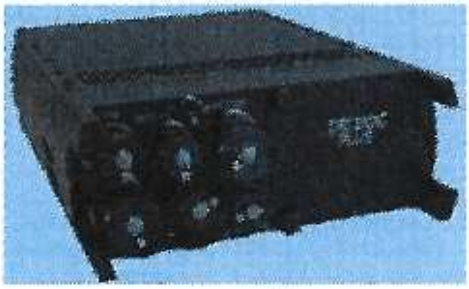
DRT 1301C



Capabilities

Description: The DRT 1301C provides a miniature, yet powerful, surveillance capability against a variety of analog and digital wireless standards. It extends the capabilities of previous DRT systems. It incorporates advanced passive cooling technology eliminating the need for a noisy fan.

Limitations & Planning Factors

DRT 1301C Equipment Specifics:

- Software configurable to process various wireless standards. Processes multiple formats simultaneously.
- DF option available.
- INMARSAT software is available
- Provided expanded frequency coverage and bandwidth
- Designed for harsh environments
- 8 full Duplex or 16 half duplex conversations simultaneously
- 20 MHz to 3000 MHz
- Weight: 10.5 pounds

Vendor: Digital Receiver Technologies
Protocols: Multi-protocol
BOIP:
Cost: $100K

Approval: Title 10/ 50

DRT 1301B3

Capabilities

Description: The DRT 1301B3 provides smaller/rugged surveillance capability against a greater variety of analog and digital wireless standards than the DRT1101B. The DRT1301B3 can be configured to support DF, digital voice intercept/recording, supports target lists of up to 10,000 entries and incorporates higher performance control processors for increased processing speed and faster boot times.

Limitations & Planning Factors

DRT 1301B3 Equipment Specifics:

- Processing/Monitoring of up to 24 channels.
- Dual Wideband RF Tuners provide frequency coverage of all wireless bands of interest (20-1150 MHz, 1429-2500 MHz)
- Auto-configuration mode facilitates setup of unit; recognizes and decodes all control and traffic messages
- Small size and light weight
- Low noise signature
- Low power requirement

Vendor: Digital Receiver Technologies
Protocols: Multi-protocol
BOIP:
Cost: $100K

Approval: Title 10/ 50

DRT 4411B

Capabilities

Description: The DRT 4411B is a miniature receiving system that provides powerful electronic surveillance capability against a variety of analog and digital wireless standards. Utilizing the latest in digital signal processing (DSP) and micro-processor technology.

Limitations & Planning Factors

DRT 4411B Equipment Specifics:

- RESTRICTED SYSTEM
- Small size and light weight and quiet
- Low noise signature
- Low power requirement

Vendor: Digital Receiver Technologies
Protocols: 2 MHz – 3 GHz
BOIP:
On Hand: 2
Cost: $40K

Approval: Title 10/ 50

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DERIVED FROM:
DATED: 01 May 2006
DECLASSIFY ON: 07 January 2034

Fixed Wing Geo-Location (Manned)

- Garuda (G-Box)
- Carman I & II
- Typhon
- Windjammer
- Radiance
- Raven
- Deerpark
- Adder
- Traveler
- Nebula / NGW
- Icarus / Radio Eye (New Development)
  - Near Vertical Direction Finding (NVDF)

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DERIVED FROM:
DATED: 01 May 2006
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Garuda (G-Box)

Capabilities

Description: The G-Box is used as a GSM airborne geo-location system to replicate a GSM network Base Station. They operate by attracting and registering handsets operating on the local commercial network. Each handset's IMSI (International Mobile Subscriber Identity) or IMEI (International Mobile Station Equipment

Subscriber Identity) or IMEI (International Mobile Station Equipment Identity) is compared against the 's target watch list. When a targeted handset is identified and registered to the box, a geo-location solution is calculated. G-Box was specifically designed and built for geo-location missions in fixed wing aircraft (manned/ unmanned). Garuda received a software upgrade that modified the algorithm software, which allows the system to take 1000 entries.

Limitations & Planning Factors

G-Box Equipment Specifics:

- Dual band system (900/1800 & 850-1900 MHz)
- RX BAND 880-915 & 1710-1785 MHZ
- TX BAND 925-960 & 1805-1880 MHZ
- System GPS
- Active L1/L2 Band
  - L1 1575.42 +/- 10 MHz
  - L2 1227.00 +/- 10 MHz
- Effective Ranges- Min: 5 miles Max: UKN
- Target List Max: 1000 targets

Vendor: VIA SEPCOR
Protocols: GSM
BOIP:
Cost: $185,000.00

Approval: Title 10

DERIVED FROM:
DATED: 02 May 2008
DECLASSIFY ON: 07 January 2034

SECRET // NOFORN

Carman

Capabilities

Description: The C-Box is used as a GSM air & ground geo-location system to replicate a GSM network Base Station. It operates by attracting and registering handsets operating on the local commercial network. Each handset's IMSI or IMEI is compared against the TF's target watch list. When a targeted handset is identified and registered to the box, a geo solution is calculated. The Carmen can also be used for target isolation by preventing GSM calls. Carman has provided hundreds of handsets to [illegible]. The G-boxes and Carmen are built on the same core radio, but each run a different firmware and software. The user GUI on each unit is also different which allows for operator manipulation of additional network parameters.

Limitations & Planning Factors

C-Box Equipment Specifics:
Single band system (850, 900, 1800 & 1900 MHz)
RX BAND 880-915 MHZ
TX BAND 925-960 MHZ
System GPS
Active L1/L2 Band

Vendor: VIA SEPCOR
Protocols: GSM
BOIP:
Cost: $185,000.00

L1 1575.42 +/- 10 MHz
L2 1227.00 +/- 10 MHz
Effective Range: Min 5 miles Max UKN
Target List Max: 500 targets, recommend <400

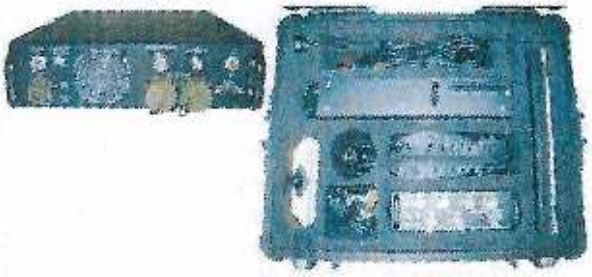
*CARMEN software includes EA capabilities that the G-Box Series does not have (Deny, Disrupt, Degrade and Deceive).

Approval: Title 10

SECRET // NOFORN

DERIVED FROM:
DATED: 01 May 2006
DECLASSIFY ON: 07 January 2034

Carman II



Capabilities

Description: The C-Box II is a GSM BTS operating in the 850/900/1800/1900 MHz GSM bands that establishes connection with targeting devices. It operates by attracting and registering handsets operating on the local commercial network. Each handset's IMSI or IMEI is compared against the TF's target watch list.

Limitations & Planning Factors

C-Box II Equipment Specifics:
Single band system (850, 900, 1800 & 1900 MHz)
Size 15.5" x 3.5"
Weight: 15 lbs (batteries not included)
RX BAND 880 915 MHZ
TX BAND 925-960 MHZ
System GPS - Active L1/L2 Band
L1 1575.42 +/- 10 MHz
L2 1227.00 +/- 10 MHz
Effective Range: Min 5 miles Max UKN
Target List Max: 500 targets, recommend <400
*CARMEN software includes EA capabilities that the G-Box Series does not have (Deny, Disrupt, Degrade and Deceive).

Vendor: Key W
Protocols: GSM
BOIP:
Cost: $130,000.00

Approval: Title 10

SECRET // NOFORN

DERIVED FROM:
DATED: 01 May 2006
DECLASSIFY ON: 07 January 2034

Typhoon

Capabilities

Description: The Typhon is used as a GSM airborne geo-location system to replicate a GSM network Base Station. They operate by attracting and registering handsets operating on the local commercial network. Each handset's IMSI (International Mobile Subscriber Identity) or IMEI (International Mobile Station Equipment Identity) is compared against the target watch list. When a targeted handset is identified and registered to the box, a geo-location solution is calculated. Typhoon was specifically designed and built for geo-location missions in fixed wing aircraft (manned/unmanned).

Limitations & Planning Factors

Typhoon Equipment Specifics:

- 30km+ range in rural areas, 5km in urban areas
- Integrated GPS
- Highly mobile
- Field Upgradable
- Battery or vehicle power capable
- 4-8 hour battery life
- 20 pounds with out the battery

Vendor: NSA TAO

Protocols: GSM 850/1900, 900/1800

BOIP:

Cost: $175,800.00

Approval: Title 10/ 50 (Title 10 only under S-35)

SECRET // NOFORN

DERIVED FROM:
DATED: 01 May 2006
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Windjammer

Capabilities

Description: Windjammer is a Thuraya, INMARSAT hand-held satellite simulator that can conduct survey, stimulation, denial of service, and geo-location of a given target handset. It presents itself to satellite terminals as the network issuing commands that cause the terminals to communicate with the system directly. The terminal identities are determined at which time they may be actively geo-located. Variants include Portable (pictured), Rack System for simultaneous, multi-network operations, and UAV Systems which include a low bandwidth remote control capability.

Limitations & Planning Factors

Windjammer Equipment Specifics:
Networks: Inmarsat miniM, Thuraya
TX BAND:
Tuning Range: L-Band (1525-1559 MHz)
RF Output Power: Selectable from -12 dBm to +37 dBm
RX BAND:
Full Range Receiver: 1525 - 1665 MHz
Uplink Receiver: 1626.5 - 1665 MHz
GPS RX:
Antenna Connector: SMA
Antenna: External 1575.42 MHz, RH polarization, active 3 V, 20 dBi gain, SWR < 2.5
Range >2 miles ground, >8 miles air

Vendor: SR Technologies
Protocols: Inmarsat, Thuraya
BOIP:
Cost: $192,000.00

Approval: Title 10/ 50

DERIVED FROM:
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Radiance

Capabilities

Description: Radiance is a self-contained portable airborne and ground interrogator system capable of capturing, interrogating, and geo-locating CDMA-2000 and IS-95 mobile devices. Radiance captures, interrogates, and geo-locates the handset by continuously collecting range data on the target and pairing this data with the GPS location of the Radiance system.

Limitations & Planning Factors

Radiance Equipment Specifics:

- Band: CDMA-2000 (single-banded system)
- Requires separate network survey device (ICS2 from QRC Inc.)
- Causes Denial of Service (DoS) during operation to CDMA network for short period
- 27 Jan- 12 Feb - Deployed for two week operational assessment/Combat Evaluation (OIF)
- A/C integration difficult due to size

Vendor: Vendor West
Protocols: 450, 800, and 1900MHz CDMA 2000
BOIP:
Cost:

Approval: Title 10

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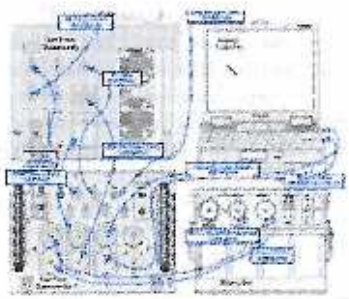
DERIVED FROM:
DATED: 01 May 2006
DECLASSIFY ON: 07 January 2034

Raven



Capabilities

Description: Raven is used to interrogate WCDMA phones and to geolocate target phones from the air or from the ground. Interrogation is the process of getting phones to send information such as their unique identifiers (e.g. IMSI and IMEI). Geolocation is the process of determining the geographical location of a target phone.

Vendor: Vendor West

Limitations & Planning Factors

Raven Equipment Specifics:
- Band: UMTS (single banded system)
- Requires separate network survey device
- Causes Denial of Service (DoS) during operation to UMTS network for short period
- Developmental

Protocols: UMTS
BOIP:
Cost: $800K

Approval: Title 10

SECRET // NOFORN

DERIVED FROM:
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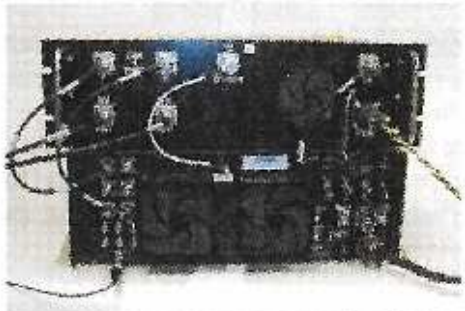
DECLASSIFY ON: 07 January 2034

Deerpark



Capabilities

- Targets 450 sub-band A/C, 800, and 1900MHz CDMA-2000 & IS-95 mobile devices
- Multi-banded system
- Unique identifiers include IMSI-S & ESN/MEID
- Passive survey of handsets/base stations
- Passive geo-location of handsets/base stations
- Active stimulation/geolocation of handsets
- Active survey/geolocation of handsets

Limitations & Planning Factors

Deerpark Equipment Specifics:
- Ground/Airborne CDMA only
- Does NOT cause denial of service
- 205 lbs w/ Adder & all four Filter Amps
- Requires 28 VDC at ~25 amps for operation, draws 700W for Adder and one Filter Amp
- Can be operated on large wheeled vehicle utilizing 12 to 28 VDC up-converter

Vendor: Rincon IAW NRO
Protocols: CDMA 450, 850, 1900
BOIP:
Cost: $250K

Approval: Title 10

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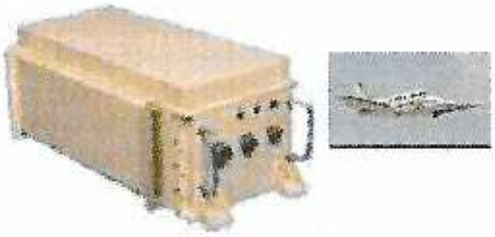
DERIVED FROM:
DATED: 01 May 2006
DECLASSIFY ON: 07 January 2034

Traveler (EW FoS)



Capabilities

Description: TRAVELER is a *developed* software defined multi-protocol system capable of active/passive GSM geo-location, passive GSM survey/tower mapping, HPCP/PTT intercept/DF, Thuraya intercept/copy/geo-location. Traveler passive capability reduces network signature/impact on the network. Provides robust airborne network survey capability.

Limitations & Planning Factors

Traveler Equipment Specifics:

- 10 channel, 20MHz to 3GHz airborne software programmable system designed to survey and geo-locate designated signals of interest (SOI).
- Targets the 850, 900, 1800, and 1900MHz GSM bands.
- Traveler is designed so that adding additional SOI is a matter of porting software into the Traveler processing unit.
- The near-term to include CDMA and UMTS
  - Multi-Channel Spatial Processing (Co-Channel Reduction)
  - Covert On-Demand Active Techniques
  - Moveable Between Platforms In Field
  - Multi-Channel Direction Finding (DF)
  - Correlation Interferometer Precision Geo-location (CIGL)

Vendor: BAE Systems
Protocols: GSM 850/1900, 900/1800 passive GSM survey/semi-passive geolocate, HPCP, PTT, Thuraya (Vagrant). Future SOI ports planned include: CDMA (Deer Park), UMTS & TTL
BOIP:
Cost: $750k

Approval: Title 10

SECRET // NOFORN

DERIVED FROM:
DATED: 02 May 2006
DECLASSIFY ON: 07 January 2034

Nebula

Capabilities

Description: Nebula is an NSA *Developmental* airborne multi-protocol box designed for geo-location against GSM (Multi-Band), CDMA, UMTS, and H. Currently can target HPCP, GSM, Inmarsat, Thuraya, CDMA-2000, HSDPA. The NSA is leading system development (NSA lead).

Limitations & Planning Factors

Nebula Equipment Specifics:

- Band: GSM (multi-band), CDMA-2000, UMTS, HSDPA.
- Able to lock and hold traffic from 12 miles away
- Air/Ground Geo-location ability to within 200m (results often closer to a 10m CEP)
- Able to change channels without dropping locked HS
- High DC power requirements (Nebula 2C)
- Weight 45 pounds
- Power requirement: 450 Watts 36VDC

Vendor:

Protocols: GSM (multi-band), CDMA, UMTS, WiMAX, LTE, HSDPA, HPCP, Inmarsat, Thuraya

BOIP:

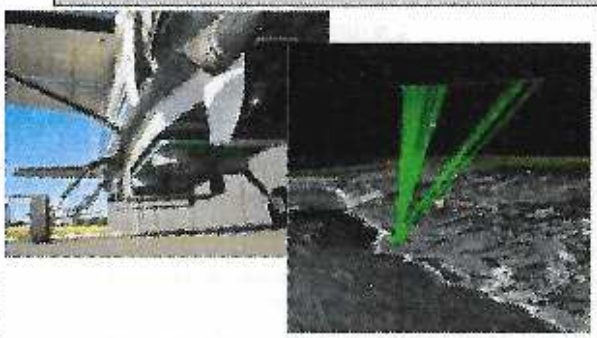
Cost: TBD

Approval: Title 50

SECRET // NOFORN

DERIVED FROM:
DATED 01 May 2006
DECLASSIFY ON: 07 January 2034

ICARUS/ NVDF



Capabilities

Description: NVDF provides instantaneous PTT VHF/UHF geolocation capability to support missions where it is possible to fly much closer to targets than traditional stand-off systems. Ideal for rural or remote areas where the density of emitters is low (no inherent interference cancellation, ideal for AFG operations) Signal types for initial system frequency range: 100-500 MHz (Push to Talk Transcelvers (PTT), FRS Transcelvers, High-Powered Cordless Phones (Handset and Base Station) , CW Beacons and RF Tags, Trunk Mobile Radios

Limitations & Planning Factors

NVDF Equipment Specifics:

- Better look-angle, resolution, and accuracy for EO/IR sensors (directly above target, +/- 60 degrees angle, sub 50m accuracy achieved in CONUS testing)
- More favorable intercept conditions for low power emitters (Locate priority talkers vice repeaters)
- Instantaneous Geolocation from a signal measurement due to a 2D look-down antenna array.
- Proto-type (CIA) system designed for general aviation acft: AST Hydrah processor, 4x10 ft array w/ cavity backed circular polarized spiral antennas designed to cover 100-500Mhz range.

Vendor: AST
Protocols: PTT
BOIP:
Cost: $1.5 mil

Approval: Title 10

SECRET // NOFORN

DERIVED FROM:
DATED: 01 May 2005
DECLASSIFY ON: 07 January 2034

PGL Payloads on UAVs

- Twister
- S-100 w/ Carman II and Windjammer
- Gauva (G-Pod/STE)

- GarWind (BLOS G-Pod)
- Gilgamesh
- Airhandler
- BLOS
- Radiance (BLOS Rad-Pod)
- Jagged Amber
- Traveler Pod

SECRET // NOFORN

DERIVED FROM:
DATED: 05 May 2006
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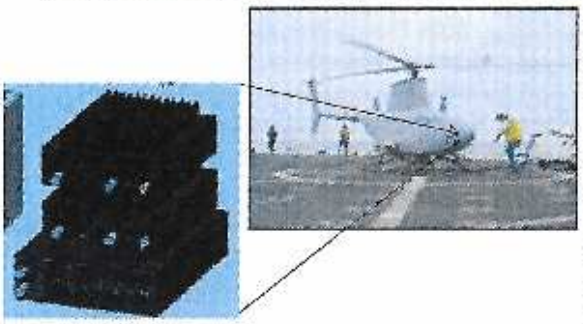
Twister – Firescout APG



Capabilities

Description: Twister is a multi-frequency band, micro-class Base Station Router. Its has a power output of +43dBm, integrated GPS, Voice & High-speed Data capability, GSM security & encryption making system highly mobile and deployable for field use. The system is designed for VBTS GUI Software support which includes full VBTS GUI feature base and applications. The software allows for complete command and control, which provides support for a variety of field applications. The system is optimized for low power consumption, custom installation, and familiarity of use w/ existing VBTS GUI operators.

Specifications:

Physical Dimensions:
- Twister BSR: 9.38"L x 7.75"W x 2.13" H
- Twister Aux Front-End: 8.25"L x 5.75"W x 3.25"H

Weight:
- Twister BSR = ~ 3.5 lbs
- Twister Aux Front-End: ~ 6.5 lbs

Environmental
- Operating Temp: 0° to + ~50°C (90% humicity non-condensing)
- Storage Temp: -30°C to + ~80°C
- Convection cooled

GSM Frequency Capabilities
- EGSM (900Mhz), DCS (1800Mhz), PCS (1900 Mhz)
- Full-rate Voice Encoder, Basic SMS Messaging

Power:
- Input Power Requirements = 55W (Max) in typical configuration
- Input Voltage Range = 28 VDC

Integrator: Northrop Grumman IS/AS ICW PMA-266

Protocols: GSM 900/1800/1900 Mhz

Approval Authority: GFC IAW host nation GCC approvals

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Boeing/Schiebel S-100

Capabilities

Description: System Provides Real Time Land or Sea-based ISR. KPPs
- Maritime Takeoff and Landing 50'x44' Helicopter Pad, Sea-State 2 (T)
- Data Link Range up to 180 km
- 6 Hrs Endurance @ 55 kts @ 25 kg ; (55 lbs) payload
- Unpack/Pack-up in <6 Hr (T)
- Max Air speed: 130 kts (240 km/h) IAS
- Cruise Speed: 100 kts (185 km/h) IAS
- Ceiling: 18, 000 ft in ISA conditions @ reduced GW
- Operating temp: (-40 F to 131 F); winds up to 25 kts (46 km/h)

Limitations & Planning Factors

KATAHDIN Equipment Specifics:
- CAN NOT ARM with weapons
- Internal ST6 maritime requirement

Vendor: Boeing
Protocols: GSM, Thuraya & FMV
BOIP:
On-Hand:
Cost: TBD
Approval: Title 10

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GUAVA (G-Pod/STE) -- LOS

G-Pod

STE

Capabilities

Description: The SP1 G-Pod system is a GSM airborne (UAV) geo-location system to replicate a GSM network Base Station. The G-pod (Garuda in an 18 inch pod) is deployed on the MQ-1/9 acft. Once at mission altitude, the Ground Control Data Link (operated from Surface Terminal Element, STE) contacts the G-pod and creates an Ethernet connection for payload command and control as well as data link command and control. The payload operator is then free to perform mission activities while the air to ground control data link tracks and maintains a connection with the UAV sensor pod.

Limitations & Planning Factors

Guava Equipment Specifics:

G-pod (G-Box in a pod, see G-box specs)
Data Link: TCDL
Xmit Power: >10 Watts.
Power Consumption: <600 watts
Dimensions: 68" X 18"
Weight: 125 lbs with sensor

G-Pod Ground Station (Surface Terminal Element, STE)
Data Link: TCDL
Xmit Power: 2 watts.
Power Consumption: <2000 watts
Dimensions: 8 feet diameter

System Range: 90 NM

Integrator: Northrop Grumman IS ICW General Atomics

Protocols: GSM 900/1800

Approval: Ground Force Commander IAW host nation GCC approvals

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GarWind/ BLOS Pod

Capabilities

Description: BLOS G-Pod. Garwind is a GSM airborne

(UAV) geo-location system to replicate a GSM network Base Station deployed on the Predator UAV. With BLOS capabilities Garwind is able to operate in areas without a Surface Terminal Element (STE) reducing the need for a ground footprint. Garwind allows the transfer of G-Pod and Windjammer sensor data over the BLOS SOCOM Ku-Band SATCOM datalink using the Garwind Ground Control System (GCS)

Limitations & Planning Factors

Garwind Equipment Specifics:

- 31 Mar 09 – 1 Apr: Test POD KU connectivity at Cannon – Successful.
- 4-6 Jun 09– Conduct Test bed Network evaluation and certification at . Successful.
- 18 Dec 09 – Planned completion date for integration.
- Jan 10 – UTC Plan to field first MQ-9 w/ BLOS G-POD and upgrade entire fleet of PODS. Priority first on MQ-9's and then on the MQ-1's once integration testing is completed on that platform.

Vendor:
Protocols: GSM (multi-band)
BOIP:
On-Hand:
Cost:
Approval: Title 10

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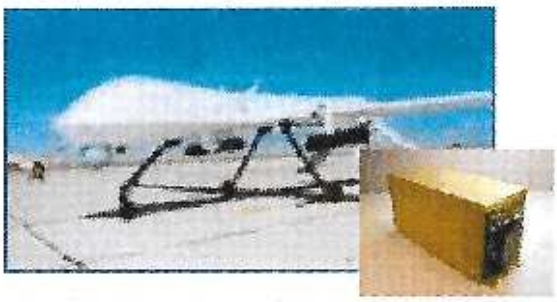
Gilgamesh



Capabilities

Description: Gilgamesh is a Geo-location device designed to conduct BLOS UAV APG operations from MQ-1/9 aircraft. Gilgamesh is controlled via the Air Handler/Predator KU Band data link and does not require a STE to operate. System geo-locates with same accuracy and generally same TTP as other systems. Currently C2 interface via NSA Net.

Limitations & Planning Factors

Equipment Specifics:

Vendor: Sierra Nevada Corporation ICW NSA OTRS/DAED and General

- AWR completed for USSOCOM/ACC MQ-1/9 aircraft
- Weight : ~8.5 lbs (LRU), requires modified VSAE including antenna and cable harness on both MQ-1/9 acft
- Bandwidth requirements: Typical configuration, 4800 bps uplink, 256 kbps downlink
- Requires Airhandler to operate
- Current Payloads: Gilgamesh LRU
- Payload Vendor(s): Protected, SNC

Atomics

Protocols: GSM 900/1800 (one band available in flight). Requires separate vertical tailfin antenna assembly (VSAE) per band.

Approval: Ground Force Commander IAW host nation GCC approvals

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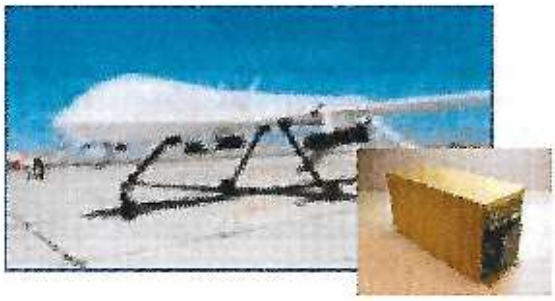
Airhandler



Capabilities

Description: Airhandler is designed to conduct BLOS UAV geo-location operations from MQ-1/9 aircraft primarily used against low-band (PTT) signals-of-interest. Airhandler is controlled via the acft KU Band data link. Currently C2 interface via NSA Net. Requires multiple collection nodes for increased geo-location accuracy.

Limitations & Planning Factors

Equipment Specifics:

- AWR completed for USSOCOM/ACC MQ-1/9 aircraft
- Weight : ~13 lbs (LRU), requires modified VSAE including antenna and cable harness on both MQ-1/9 acft
- Bandwidth requirements: Typical configuration, 4800 bps uplink, 256 kbps downlink
- Current Payloads: Gilgamesh LRU
- Payload Vendor(s): SNC

Vendor: Sierra Nevada Corporation ICW NSA OTRS/DAED and General Atomics

Protocols: PTT (primary), COMINT 130-180Mhz, 220-475Mhz, freq range 20-3000Mhz

Approval: Ground Force Commander IAW host nation GCC approvals

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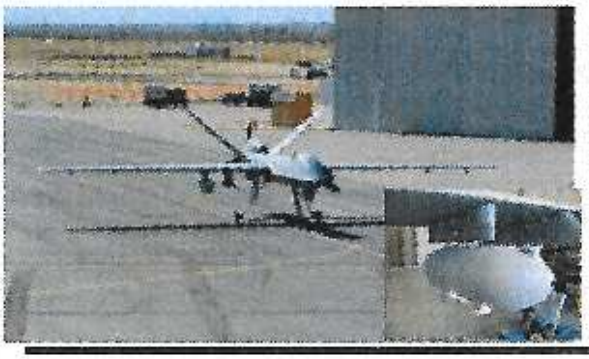
BLOS Pod



Capabilities

Description: Pod based capability that allows for remote operation of Ethernet payloads removing the requirement for dedicated, line-of-sight (LOS) tactical data link. Ethernet data is routed over the aircraft's serial SATCOM data link using an Asymmetric Ethernet Device (AED). The AED is placed on each end of the aircraft's SATCOM data link (onboard Pod, GCS) and is used to convert Ethernet data to serial for transit across the link.

Equipment Specifics:

- AWR completed for USSOCOM MQ-1/9 aircraft, Warrior Blk-0
- Pod weight: ~123 lbs (with G-Box/WJ payloads)
- Bandwidth requirements: Typical configuration, 4800 bps uplink, 256 kbps downlink
- Current Payloads: Garuda (G-Box), Windjammer-U
- Payload Vendor(s): Protected, SR Technologies

Integrator: Northrop Grumman IS ICW General Atomics

Protocols: GSM 900/1800, Thuraya/Inmarsat

Approval: Ground Force Commander IAW host nation GCC approvals

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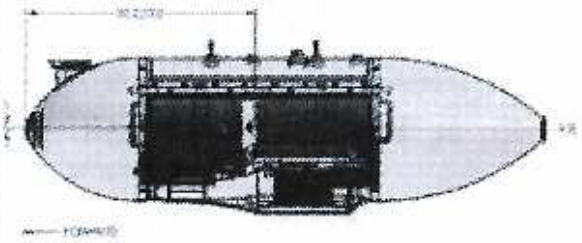
RADPOD (Radiance Pod)



Capabilities

Description: Pod based capability that allows for remote operation of Ethernet payloads removing the requirement for dedicated, line-of-sight (LOS) tactical data link. Ethernet data is routed over the aircraft's serial SATCOM data link using an Asymmetric Ethernet Device (AED). The AED is placed on each end of the aircraft's SATCOM data link (onboard Pod, GCS) and is used to convert Ethernet data to serial for transit across the link.

Equipment Specifics:

- AWR completed for USSOCOM MQ-1/9 aircraft
- Pod weight: ~131 lbs (with Radiance payload)
- Bandwidth requirements: Typical configuration, 4800 bps uplink, 256 kbps downlink
- Current Payload (s): Radiance 850
- Payload Vendor(s): Protected

Integrator: Northrop Grumman IS ICW General Atomics

Protocols: CDMA-2000, 850Mhz

Approval: Ground Force Commander IAW host nation GCC approvals

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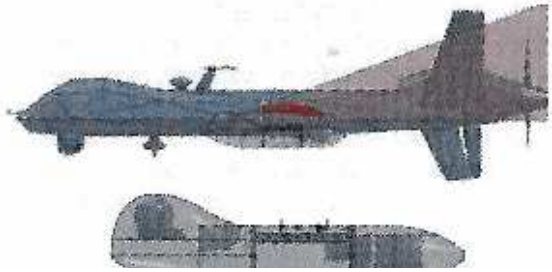
Jagged Amber – Next Gen BLOS



Capabilities

Description: Pod based capability that allows for remote operation of Ethernet payloads removing the requirement for dedicated, line-of-sight (LOS) tactical data link. Ethernet data is routed over dedicated airborne SATCOM terminal integrated into the pod, removing the requirement to leverage acft KU-Band C2 link and allowing for higher dedicated

BW for future IO/TTL/communications requirements

Integrator: Northrop Grumman IS ICW Big Safari & General Atomics
Protocols: GSM 900/1800, CDMA 450/800, Thuraya/Inmarsat, TTL
Approval: Ground Force Commander IAW host nation GCC approvals

Equipment Specifics:
- In development for USSOCOM MQ-9
- Pod weight : ~250 lbs (with payloads)
- Current Payload (s): Twister, Siren, Windjammer, MuRX, Vector
- Payload Vendor(s): Protected, AST, SR Technologies

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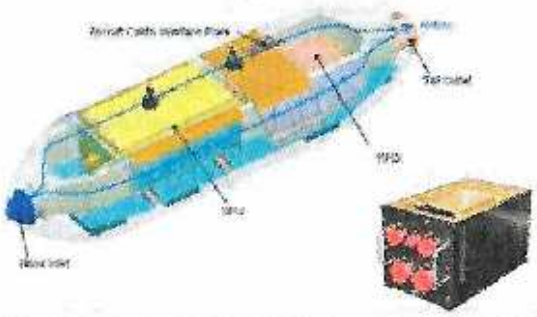
Traveler Pod – T-Pod



Capabilities

Description: Pod based software defined multi-protocol system capable of GSM survey/map/geo-location, CDMA survey/map geo-location, HPCP/PTT intercept/DF, Thuraya intercept/copy/geo-location. Traveler's less instrusive techniques reduces network signature/impact on the network. Provides robust airborne network survey capability.

Integrator: BAE Systems ICW General Atomics
Protocols: GSM, CDMA, Thuraya, HPCP/PTT, TTL
Approval: Ground Force Commander IAW host nation GCC approvals

Equipment Specifics:
- In development for USSOCOM Warrior Blk-1
- 5-35 awaiting 3U Traveler variant prior to Pod integration
- Pod weight : ~180 lbs (with payloads)
- Current Payload (s): Traveler 6U (Warrior)
- Payload Vendor(s): BAE Systems

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Ground Based Geo-Location (Vehicular)

- GX-200
- Artemis
- Maximus
- Spartacus I/ II
- Carman / Carman II
- Cyclone Mx9
- Windjammer
- Buckshot
- Yellowstone
- Kingfish
- Stingray I/II
- PRD-13
- Hayden I/II
- StarGrazer
- Sidewinder
- REBUS
- Radio Eye (In development)

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GX-200

LIFE CYCLED BY MAXIMUS & SPARTACUS II

Capabilities

Description: Nearly identical to the GX100 Series (Nemesis), the upgraded GX200 series performs the same capacity in the ground-role GSM stimulation; however, the GX200 profiles a more robust operator system capable of better physical movement, advanced offset targeting, and higher MHz range. System relies on second system, Artemis, for geo-location resolution.

Note: Nemesis current OBC Typhon issued to SIGINT personnel, now being re-tyre replaced with Maximus.

Limitations & Planning Factors

GX-200 Equipment Specifics:

- 2x Dual band 900/1800 high power receivers
- Air-interface survey, interrogation and release functionality
- High volume registration and covert traffic channel establishment
- High performance custom RF and signal processing hardware
- Advanced smart diversity reverse enhanced receiver
- Largely replaced by the Maximus

Vendor: Martone Radio Technology, Inc.

Protocols: GSM

BOM:

Cost: $2[illegible]0,000

Approval: Title 10

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Artemis

Capabilities

Description: Artemis is a dual band 850/1900 & 900/1800 MHz system that provides a GSM geo-location capability similar to Carmen and G-box. However, it cannot be operated effectively from air platforms and is currently used exclusively as a ground system in coordination with Nemesis/Maximus (or other stimulation device that locks a handset and enables the DF). Mobile antennas can be located with an accuracy of +/- 5 degrees used to create a CEP around the target.

Limitations & Planning Factors

Artemis Equipment Specifics:

- User friendly GUI
- End to End Built in Test
- Fully digital processing of RF signals based on angle resolving techniques
- 6-channel simultaneous wideband DF measurement
- Artemis "T" to be used for Thuraya in development

Vendor: MRT

Protocols: Dual band 850/1900 & 900/1800 MHz GSM

BOIP:

Cost: $83,333.00

Approval: Title 10

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Artemis II

Capabilities

Description: Artemis is a dual band 850/1900 & 900/1800

MHz system that provides a GSM geo-location capability similar to Carmen and G-box. However, it cannot be operated effectively from air platforms and is currently used exclusively as a ground system in coordination with Nemesis/Maximus (or other stimulation device that locks a handset and enables the DF). Mobile antennas can be located with an accuracy of +/- 5 degrees used to create a CEP around the target.

Limitations & Planning Factors

Artemis Equipment Specifics:

- User friendly GUI
- End to End Built in Test
- Fully digital processing of RF signals based on angle resolving techniques
- 6-channel simultaneous wideband DF measurement
- Artemis "T" to be used for Thuraya in development

Vendor: MRT
Protocols: Dual band 850/1900 & 900/1800 MHz GSM
BOIP:
Cost: $83,333.00

Approval: Title 10

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Maximus

Capabilities

Description: Ground GSM stimulation & geo-location device

- Replicates BTS to STIM handset into RF TCH allowing for DF
- Provides limited capability to isolate targets utilizing Firewall option
- Sagem HS included to provide network survey
- Incorporates Artemis in system to provide geo-location data from both moving and stationary vehicle (zero baseline)
- System provides extended BA list with commonality chart

Limitations & Planning Factors

Maximus Equipment Specifics:

- Approx ground distance ~ 1- 4 Km
- Target Handset must be on & not engaged in a call

Vendor: Martone Radio Technology, Inc.
Protocols: GSM
BOIP: 33
Cost: $365,000.00

- Locking handset into TCH drains battery and raises signal strength
- Use of system requires deconfliction w/other geo elements in AO
- Network can identify rogue BTS
- Improper use can impact network

Approval: Title 10

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Spartacus I

Capabilities

Description: A GSM "Stimulate only" capability to meet the requirement for Man portable Geo-location device. This device is a FCG cell GSM radio that will cause GSM handsets to register to it instead of nearby cell towers in order to match handsets against a target list. Targeted handsets can then be directed into a traffic channel (silent call) and geo-located with an "Artemis" device or located with the use of direction finding devices.

Vendor: Martone Radio Technology, Inc.
Protocols: GSM 900/1800 (single band)
BOIP:
Cost: $179,429.00

Approval: Ground Force Commander

Limitations & Planning Factors

Spartacus Equipment Specifics:

- Caution should be used to avoid direct contact with the antenna element while transmitting
- Currently only a single band GSM system to be upgraded to multiband
- 4 hour battery life
- Approx ground distance ~ 1- 4 Km
- Use of system requires deconfliction w/other geo elements in AO
- Improper use can impact network

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Spartacus II

Capabilities

- Description: Standalone, man portable, vehicle and airborne PGL system. Simultaneous dual band/ dual BTS with Receive diversity. Artemis I/II interface for cross border operations. Works in conjunction with Rover software application.
  Able to go from Airborne or vehicle mount configuration to dismounted operation with no change to system. Grab and go. The smallest dual band/high powered system on the market

Limitations & Planning Factors

Spartacus II Equipment Specifics:

- 900 & 1800 MHz simultaneous operation
- 10 watts per BTS
- Size: 12" x 3.5" x 10"
- Weight: 12 lbs
- DF when connected with Artemis I/II, TDOA/ TOA in stand-alone
- 5 hours battery life at 5 watts
- Improper use can impact network

Vendor: Martone Radio Technology, Inc.
Protocols: GSM 900/1800 (single band)
BOIP:
Cost: $180K

Approval: Title 10

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Cyclone Mx9 (Micro/Macro)

No Photo Available

Capabilities

Description: Developmental highly mobile ground GSM stimulation & geo-location device
- Replicates BTS to STIM handset into RF TCH allowing for DF
- GSM security and encryption
- Integrated GPS
- Overlay GSM cellular communications supporting up to 32 Cyclone systems

Limitations & Planning Factors

Cyclone Mx9 Equipment Specifics:
- 15+ km range, Urban range ~ 1.25 km
- Utilizes existing Typhon GUI, no additional training required
- Weight: 6 pounds
- AC, DC, or battery powered
- 70 WH battery provides 90 minutes run time, 800WH battery provides 9-15 hours

Vendor:
Protocols: GSM
BOIP: Developmental
Cost: $106,000.00 estimate

Approval: N/A

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Windjammer (Ground)

Windjammer (Ground)

See Windjammer under Fixed-Wing (Manned)

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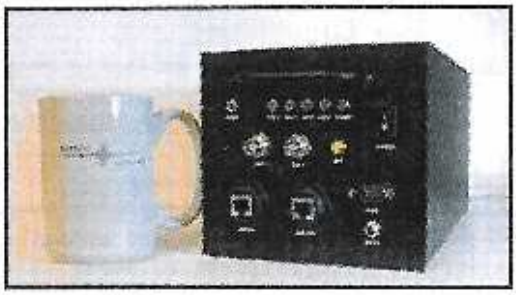
Buckshot



Capabilities

Description: Project Buckshot is a ground direction finding (DF) system specifically targeting PTT radios. The system is designed as a carry-on system suitable for quick install, low profile passive DF/Geo missions. Developmental item of interest. Not fielded in quantity.

Limitations & Planning Factors

Buckshot Equipment Specifics:
- Frequency Coverage: 30MHz to 3GHz
- Capture bandwidth: Programmable up to 200 KH

Vendor: Herrick Technical Laboratories
Protocols: PTT
BOIP:
Cost: $40,000.00

Approval: Title 10

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Yellowstone

CAPABILITIES

Description:
- Ground GSM stimulation device
- Replicates BTS to STIM handset into RF TCH allowing for DF
- Provides limited capability to isolate targets utilizing wild card or reject cause
- Plots to Falcon View and allows track of dynamic targets
- Optional 5 Watt Amp can be attached
- Backpack version of Carman

LIMITATIONS & PLANNING FACTORS

Yellowstone Equipment Specifics:
- Approx ground distance 200m
- Target Handset must be on & not engaged in a call
- Locking handset into TCCH drains battery and raises signal strength
- Target watch list limited to 500 IMEI & IMSI
- Use of system requires deconfliction w/other geo elements in AO
- Network can identify rogue BTS
- Improper use can impact network

VENDOR: OGA provide vendor protected
PROTOCOLS: 900Mhz, 1800Mhz, 850Mhz and 1900Mhz (not multi-protocol and requires antenna)
BOIP:
COST: $38,382.00

APPROVAL AUTHORITY FOR USE:
Ground Force Commander pending designation of target

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Kingfish

CAPABILITIES

Description:

- Ground GSM/CDMA stimulation device
- Replicates BTS to STIM handset into RF SDCCH allowing for DF
- Optional 5 Watt Amp available
- Backpack version
- Can lock and DF from same unit

LIMITATIONS & PLANNING FACTORS

Kingfish Equipment Specifics:

- Approx ground distance 200 Meters
- Target Handset must be on & not engaged in a call
- Cannot DF with Gjallar or Datong system
- Locking handset into SDCCH drains battery and raises signal strength
- Use of system requires deconfliction w/other geo elements in AO
- Network can identify rogue BTS
- Improper use can impact network
- Can be used by Helo Assault forces

VENDOR: Harris Corporation
PROTOCOLS: 900Mhz, 1800Mhz, 850Mhz, 1900Mhz and CDMA (multi-protocol and requires antenna)
BOIP:
COST: $32,433.00

APPROVAL AUTHORITY FOR USE: Title 10/ 50

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Stingray I/II

CAPABILITIES

Description:

- Ground GSM/CDMA stimulation device
- Replicates BTS to STIM handset into RF SDCCH allowing for DF
- Passive and active modes of operation
- Optional 5 Watt Amp available

LIMITATIONS & PLANNING FACTORS

Stingray Equipment Specifics:

- Approx ground distance 200 Meters
- Target Handset must be on & not engaged in a call
- Cannot DF with Gjallar or Datong system
- Locking handset into SDCCH drains battery and raises signal strength
- Use of system requires deconfliction w/other geo elements in AO
- Network can identify rogue BTS
- Improper use can impact network

VENDOR: Harris Corporation
PROTOCOLS: 900Mhz, 1800Mhz, 850Mhz, 1900Mhz and CDMA (multi-protocol and requires antenna)
BOIP:
COST: $134,952.00

APPROVAL AUTHORITY FOR USE: Title 10

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PRD-13

CAPABILITIES

Description: The PRD-13 is a radio frequency (RF) and direction finding (DF) signals intelligence system that provides signal location and exploitation. The PRD-13 provides Tier IO EW Operators with the ability to DF any GSM signal of interest; however, the PRD-13 is much larger than other DF systems. This system is part of the Tier EW inventory for certain conditions that require a broad spectrum, large area focus.

LIMITATIONS & PLANNING FACTORS

PRD-13 Equipment Specifics

- Directed Search (Channel scan) 400 channels; 20 priority channels; 9 bands
- Freq Coverage: 2x 2000MHz & Intercept; 2x 2000MHz Monitor; 2x 500MHz DF
- Signal List: Logs up to 400
- Built-in Test (BIT): End-to-end system test

VENDOR: L3 Communications, Linkabit Division
PROTOCOLS: 2MHz – 2GHz
BOIP:
COST: $20,000.00

APPROVAL AUTHORITY FOR USE: Title 10/ 50

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Hayden I/II

Capabilities

Description: Project Hayden is a survey, interrogation, stimulation, denial of service, and geo-location system to track high powered cordless phones (HPCP). Hayden can stimulate

cordless phones (HPCP). Hayden can stimulate handsets to allow direction finding (DF) systems such as EB-200 or Hydrah to ground track. Ongoing development will allow Hyden software be ported into Project Traveler.

Limitations & Planning Factors

HAYDEN Equipment Specifics:

- DEVELOPMENTAL
- Weight: 30lb
- Initially a 4 channel system to be increased to 12 channels for air operations
- Requires EB200 , HIDRA or HEAT for DF

Vendor: BAE Systems
Protocols: HPCP
BOIP:
On-Hand:
Cost: $110,000.00
Approval: Title 10

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Stargrazer III

Capabilities

Description: Stargrazer is an Army system developed to deny, degrade and/or disrupt a targeted adversary's command and control (C2) system on the Thuraya Handset (HS) via electronic means. Stargrazer is able to extract IMSI and IMEI data from the handset. STARGRAZER is a flexible and expandable Special Purpose Electronic Attack (SPEA) capability designed primarily to target Mobile Satellite Services communication downlink paths.

Limitations & Planning Factors

STARGRAZER III Equipment Specifics:

Operates in three different phases:

1. Phase II: Monitor mode.
2. Phase II: Attack mode: Identify, capture and jam one or more handsets while gaining 1MS1, 1ME1, TMS1, and geo-location data.
3. Phase III: "Impersonate" mode: Impersonate actual

Vendor:
Protocols: Thuraya, Thuraya DSL, ACeS
BOIP:
On-Hand:
Cost:

Thuraya network with
SGIII network and requiring the Thuraya handsets in range to register with
the impersonated network and transmit their 1MS1, 1ME1, TMS1 and geo-locational data. The phone/phones can essentially be brute force, or surgically jammed.

Approval: Title 10

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Sidewinder

Capabilities

Description: Project SIDEWINDER is a compact, software defined ground-based HPCP and GSM geo-location system. Currently in the development phase with the potential to become the replacement for the Carmen geo-location system. SIDEWINDER will employ the core technology of the TRAVELER system with a 4-channel receiver to increase to a 12-channel receiver in the future.

Limitations & Planning Factors

Sidewinder Equipment Specifics:

- DEVELOPMENTAL
- Much of technology for Sidewinder was transferred from the Traveler program
- Fully ruggedized to permit operations in a variety of ground platforms and for low-altitude rotary wing missions
- Contains both active and passive capabilities
- Frequency range from 20 MHz to 3000 MHz

Vendor: BAE Systems
Protocols: HPCP and GSM
BOIP:
On-Hand:
Cost: TBD
Approval: Title 10

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REBUS

Capabilities

Description: Ground GSM stimulation device

- Replicates BTS to STIM handset into RF TCH allowing for DF
- Provides limited capability to isolate targets utilizing Firewall option
- Sagem HS incorporated to provide network survey
- Backpack version of Series 200 box

Limitations & Planning Factors

REBUS Equipment Specifics:

- Approx ground distance 200 meters
- Target Handset must be on & not engaged in a call
- Locking handset into TCCH drains battery and raises signal strength
- Use of system requires deconfliction w/other geo elements in AO
- Network can identify rogue BTS
- Improper use can impact network

Vendor: CellXion
Protocols: GSM 900MHz
BOIP:
On-Hand:
Cost: $152,000.000
Approval: Title 10

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RadioEye

Capabilities

The RadioEye system is a lightweight, man packable, push-to-talk (PTT) radio situational awareness and DF system intended to provide operators with the capability to monitor PTT activity within range and determine from what direction a given PTT emitter is broadcasting. The system is designed to provide a ground assault force with situational awareness of any PTT activity in their immediate area. Since the majority of PTT radios operate with 50mW of amplification their typical effective range is between 300m and 400m. PTT communications networks are driven by the capability of PTT radios to transmit and receive between one another.

Limitations & Planning Factors

RadioEye:

- Power Consumption 3.3V
- Size: 12" x 3.5" x 10"
- Weight: < 10 lbs
- Battery life 6 hrs (1 x 2590)

Vendor: Ventis

Protocols: Man packable PTT

BOIP:

Cost: $97 K

Approval: Title 10

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Direction Finding Systems

- Gjaller
- Jugular I/ II
- Quasimodo
- HEATR
- Thoracic

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GJALLER

Capabilities

Description: Project Gjaller was initially developed for the CIA as a GSM direction finding (DF) capability. Locks onto HS locked onto an interrogation device. The small size allows for the operator to use the Gjaller in a covert, low-visibility role for both night/day DF operations.

Limitations & Planning Factors

Vendor: Windermere Technology

Gialler Equipment Specifics:
- Close in GMS Geo-location device
- Handheld size device
- Weight: 2 pounds
- Different handsets used for different bands
- GOTS provided equipment
- GSM band specific direction finding capability

Solution:
Protocols: GSM (quad-band)
BOIP:
On-Hand:
Cost: $4,300.00

Approval: Ground Force Commander

JUGULAR I/II

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JUGULAR 2

Capabilities
- 6 band GSM, CDMA and UMTS receiver capable of detecting and measuring RSSI
- Uses either internal antenna or external antenna
- Audible alert via Bluetooth or wired ear piece
- Channel scan feature stops at GSM TCH detect
- High and low gain selectable

Limitations & Planning Factors
- COTS - releasable to conventional forces
- Dense environments increase difficulty of DF operations
- Utilized for close in DF operations; difficult to identify targets from distance
- 3-4 hours of operation
- Comes in Black, Green, Tan or Gray

Vendor: KeyW Corporation
Protocols: GSM 850, 900, 1800, 1900, 2100
4 CDMA 450 A-H, 850, 1700 & 1900
BOIP:
On-Hand:
Cost: $5500.00

Approval: Ground Force Commander

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QUASIMODO

Capabilities

- GSM receiver capable of detecting and measuring RSSI
- 10 Band Radio Receiver
- 850, 900, 1800, 1900 and 2100 MHz capable GSM, CDMA, UMTS
- Rugged, sealed and water resistant

Limitations & Planning Factors

- Sunlight and NVG readable
- Internal rechargeable battery, 4-6 hours
- Bluetooth, wired or internal speaker

Vendor: KeyW Corporation
Protocols: GSM
BOIP:
On-Hand:
Cost:

Approval: Ground Force Commander

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HEATR

Capabilities

Description:

• Hostile Emitter Angle Tracker Revised is the primary direction finding (DF) tool for . Locks onto HS locked onto an interrogation device. Standard HEATR systems are now with a Android powered remote for covert operation. Remote allows the user to fully control the HEATR unit and antenna while being hidden.

Limitations & Planning Factors

HEATR Equipment Specifics:

- COTS provided equipment
- Weight: 8 pounds
- Detection of signals with a wide signal bandwidth such as GSM, UMTS, CDMA, Paits or Landmark
- Due to sensitivity, use in conjunction with Gjaller when entering buildings
- The system will operate from an external power source to extend the operational time indefinitely
- Not recommended for release to non-US forces

Vendor: Syndetix, Inc.
Protocols: GSM, CDMA, Thuraya
Modified systems can include TTL and PTT
Requires Multi-Protocol Antennas
BOIP:
On-Hand:
Cost: $48,000.00 (w/ antennas)
Approval: Title 10

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THORACIC

Capabilities

Description:

- Miniature, 8 band radio receiver able to detect and measure the signal strength of any channel in the uplink portions of common cellular communication bands (GSM, UMTS, CDMA & iDen).
- The radio can be controlled via a bluetooth data link to an applet operating on select phone such as Nokia N95.

Limitations & Planning Factors

THORACIC Equipment Specifics:

- COTS provided equipment
- USB chargable
- Dual output 12/24 VDC automotive pwr adapter
- 3 x omni directional antennas
- 3 x body worn patch antennas
- Wireless headset
- 2 sets of 3 antennas to cover GSM – CDMA and iDen
- Dimensions: 3.3" x 2.2" x 0.6"
- Weight: < 2 lbs

Vendor: KeyW
Protocols: GSM, UMTS,CDMA and iDen
Cost: $7,500.00 (w/ antennas)
Approval: Title 10

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Battlefield Data Recovery/SSE

- Cyberhawk
- Cellbrite

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CYBERHAWK

Capabilities

Description: These BDR systems serves as a small exploitation system for GSM handsets. Cyber Hawk exploits over 79 cell phones; uses US made software and components and presents a much smaller foot print than CELLTECH. Exploitation includes phonebook, names, SMS, media files, text, deleted SMS, calendar items and notes

Limitations & Planning Factors

BDR Equipment Specifics:

- GSM only
- Takes 4-10 mins for download
- Saved and dialed numbers, missed calls, SMS data, pictures, calendar, sound files all consolidated into one report

Vendor: NSA-SIGDEV
Protocols:
BOIP:
Cost:
Approval: Ground Force Commander

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CELLBRITE

Capabilities

Description: Is a portable, handheld, field proven forensic system for the quick extraction and analysis of 95% cell phones, smart phones and PDA devices .

- Extracts information such as phonebook, pictures, video, text messages, call logs, ESN/IMEI, and MSISDN information
- Portable end-to-end solution - battery operated, easy-to-use device that requires no PC or associated phone drivers
- Developed for field use – ruggedized housing offers additional protection in harsh environments
- SIM card extraction and SIM ID cloning

Limitations & Planning Factors

BDR Equipment Specifics:

- AC 100-240V 50/60Hz; Output DC 15V, 2A
- 217mm x 124mm x 77mm
- Time required to complete data exchange depends on amount of data (approx 1-3 minutes)

Vendor: TEEL/ CelleBrite USA Corp.
Protocols: GSM, CDMA and selected Thuraya
BOIP:
Cost: $9,920.00 (+ $900/1 yr service support & maintenance)
Approval: Ground Force Commander

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