

Texas DIR Emergency Preparedness Hardware and Related Services

Contract Number: DIR-SDD-1068



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McLane Advanced Technologies, LLC (MAT) offers DIR customers cutting-edge solutions aligned with DIR's goal of providing emergency management hardware to its customers. MAT is excited to provide DIR with three solutions that will allow users to communicate during an emergency situation using encrypted Wi-Fi or cellular phone communications.

The solutions include:

- Secure, mobile, wireless Local Area Network (LAN) connection for connectivity up to one city block
- Secure, mobile, wireless Metropolitan Area Network (MAN) connection for connectivity up to 6 nautical miles (nm)
- Secure, mobile connection of LAN systems and MAN systems up to 30 nm
- Portable GSM cellular network

MAT's Tactical Wi-Fi network is a mobile Wi-Fi system designed to provide a temporary yet secure wireless Metropolitan Area Network (MAN) or Local Area Network (LAN) in areas without coverage. Using this cutting edge technology, state or education agencies will be able to access the internet when connectivity would otherwise be inaccessible. In addition, MAT's portable cell phone network provides connectivity in emergency situations when connection would otherwise be unachievable.

MAT's solution provides the various Institute for Electrical Engineers (IEEE) 802.11 technologies (Wi-Fi's including 802.11n, 802.11b, 802.11g, and 802.11a) for environments that have no existing network due to remoteness or emergency conditions.

- Secure Wi-Fi coverage up to one city block is available with a basic system, which works using a standard Wireless Access Point (WAP).
- Setup and deployment time is under 30 minutes.
- Standard portable emergency generators can provide more than adequate power for the system (not included).
- MAT's WAP contains Tactically Unbreakable COMSEC (TUC), which provides 256-bit Advanced Encryption Standard (AES) encryption with no slow-down in throughput.
- For coverage of roughly 6 nm, a steerable planar array antenna provides 802.11b/g network connectivity.
- If connectivity between 6-mile systems is required, a second planar array antenna can provide point-to-point connectivity up to 30nm.

Thus, a state agency could disperse personnel equipped with a ruggedized case containing a laptop and/or cellular phone to areas experiencing an emergency or natural disaster. Other 802.11 compatible devices can be added if provided by the user. State and/or educational agency personnel could connect via lap top or cell phone using either a LAN antenna or MAN antenna to communicate with police, fire and rescue, neighboring communities, or any other worldwide network. The connections would be secure even in devastating emergency conditions, preventing unwanted disclosure of sensitive information to the media, terrorists, criminals, or other undesired elements.

Wi-Fi technologies are supported by nearly every modern personal computer operating system, most advanced network appliances and laptops, and many printers and other peripherals. MAT's tactical Wi-Fi network provides a secure connection using AES encryption. The entire tactical Wi-Fi system is designed for rapid delivery in a vehicle with equivalent cargo capacity of a HUMVEE. It can also be palletized and airdropped.

Three options are available:

DEPLOYMENT OPTION A: (LAN)

Option A provides a secure wireless LAN for a command post or office-type environment. Wi-Fi range will vary depending on the style and composition of the structure hosting the system (i.e., tent, concrete building, portable building, etc.). Structures made from less dense construction materials will obtain the greatest coverage. In urban conditions, range will cover roughly one city block. Option A supports all IEEE 802.11 technologies. Option A hardware will include an access point containing a built-in GSM cellular network, four Dell laptops pre-configured with TUC Client AES, and the required cabling. In each option, Wi-Fi peripherals other than the Dell laptop can be used.

Option A provides connectivity to the internet through one of two paths:

1. an existing operational internet link
2. through a GSM cellular phone link

DEPLOYMENT OPTION B: (MAN)

Option B provides a secure wireless MAN with a 360 degree footprint and an average 6nm range. Wi-Fi range may be higher or lower depending on weather conditions and antenna placement. Option B supports IEEE 802.11 b/g technologies as a stand-alone system. However, it can connect to an Option A LAN, or be linked to an Option C planar array antenna at distances up to 30 miles. Option B provides connectivity to the internet through one of two paths: 1) an existing operational internet link, or 2) through an optional satellite dish internet transceiver linked directly to the internet. Using the satellite transceiver link, throughput varies from 5-10 Mbps, depending on a client's distance from the planar array antenna. Option B hardware will include an access point built into a Network Antenna Assembly, TUC AES Security Module, four Dell laptops pre-configured with TUC Client, and the required cabling.

Optional Option B components are:

1. Internet Access Satellite Transceiver (dish and controller)
2. Satellite Transceiver Connection Cabling (COAX Cable)

The number of Internet Access Satellite Receivers may vary depending upon throughput requirements. Option B systems may use the planar array antenna or standard cabling to connect to an Option A System (LAN/MAN combination using one Internet Access Satellite Receiver).

DEPLOYMENT OPTION C: (MAN INTERLINK)

Option C provides a long-distance, point-to-point connection between itself and Option B MAN systems. Interlinks Option B antennas (with standard 6m footprints) can be accomplished at distances up to 30m using two planar array antennas pointed toward one another. Ranges may be higher or lower depending on weather conditions and antenna placement. Option C links use the IEEE 802.11 b/g protocols. Option C provides connectivity to the internet through one of two paths: 1) an existing operational link, or 2) through an optional satellite dish internet transceiver linked directly to the internet. Using the satellite transceiver link, throughput varies from 5-20 MBPS, depending on a customer's distance from the planar array antenna. Throughput varies from 5-20 MBPS on the point-to-point planar array link, depending on the distance between antennas, antenna placement, and weather conditions.

Option C hardware will include an access point built into Network Antenna Assembly, TUC Client AES Security Module, four Dell laptops pre-configured with TUC Client, and the required cabling.

Optional components for Option C are:

1. Internet Access Satellite Transceiver (dish and controller)
2. Satellite Transceiver Connection Cabling (COAX Cable)

The number of Internet Access Satellite Receivers may vary depending upon throughput requirements. Option C systems may use the planar array antenna or standard cabling to connect to an Option A System (LAN/MAN combination using one Access Satellite Receiver).

OPTION B/C MAN ANTENNA FEATURES

1. RCC UNIT HARDWARE

- The RCC unit hardware comprises the following:
- A RCC softcase
- A Panasonic Toughbook™ laptop PC
- An Inmarsat® BGAN satellite terminal
- A BTS
- An optional external antenna
- An optional power amplifier
- An optional Telit scanning device and antenna

2. PANASONIC TOUGHBOOK PC

- The Toughbook™ consists of a ruggedized Panasonic laptop running:
- The RGW application
- RCC management functions
- Operation and Maintenance (O&M) functions
- RIAS (Radio Interference Avoidance System)
- NetSim for standalone operation (operates on Windows operating system)
- Windows and LINUX operating systems
- The Toughbook™ laptop has all connections necessary for interfacing with the BTS and BGAN satellite modem.

3. INMARSAT® BGAN TERMINAL

The usual satellite terminal supplied with the RCC unit is a Broadband Global Area Network (BGAN) terminal. The BGAN is a standalone device, which is used to connect user equipment to the Inmarsat® satellite network. The Inmarsat® network is a commercial satellite network that provides worldwide communications. The satellites are in geostationary orbit at 36000 kms. This means the satellites orbit the earth once every 24 hours, thus seeming to be in a fixed position above the equator.

The BGAN terminal requires a SIM from an airtime provider for activation. The RCC supports a number of different BGAN terminals. These are as follows:

- Thrane and Thrane EXPLORER™ 100/110 Portable BGAN
- Thrane and Thrane EXPLORER™ 300 Portable BGAN
- Thrane and Thrane EXPLORER™ 500 Portable BGAN
- Thrane and Thrane EXPLORER™ 700 Portable BGAN
- Thrane and Thrane EXPLORER™ 527 Vehicle Mount BGAN
- Thrane and Thrane EXPLORER™ 727 Vehicle Mount BGAN
- Hughes NHS 9201 Portable BGAN
- Hughes NHS 9250 Vehicle Mount BGAN
- Sabre1 WideEye

4. BGAN ANTENNA

The satellite antenna needs a clear view of the sky towards the satellite being used. Pointing the satellite antenna does not require any special skills. It is a simple operation assisted by the built-in compass and signal strength meter. The antenna is directional, so, once the satellite has been acquired, the BGAN terminal does not need to be repositioned unless the RCC unit is moved to a different location.

5. BTS

The supplied BTS is a single cell, single TRx unit. The maximum output power of the BTS is 23 dBm (200 mW) and it can be fitted with an optional 4 W booster, which is then connected to an external antenna to enhance the RCC coverage footprint. The BTS supports a maximum of 7 traffic channels, up to 6 of which can be configured as dynamic PDCH/TCHs. Each Remote Gateway can support up to 2 TRxs within a single cell. The combined 2 TRx supports a maximum of 15 Traffic channels, up to 7 of which can be configured as dynamic PDCH/TCH. The others are configured as TCHs.

6. SCANNING DEVICE

The scanning device is used together with its antenna to provide GPS location and GSM network information to the optional RIAS. The device is essentially a scanning module which is used to detect the presence of other cellular networks in the area.

7. ANTENNAS

There are two main antennas and an optional auxiliary antenna used by the RCC unit. The main antennas are the BGAN satellite antenna and the cellular antenna. The optional antenna is the scanning antenna.

7.1 CELLULAR ANTENNA

The other main antenna is the cellular antenna which provides coverage for the user terminals. This antenna should be located in as unobstructed an area as possible or as high as possible to maximize the range of the cell. This antenna can be mounted on a vehicle, tripod, and existing pole or even on a tree. Again, no special skills are required to mount the cellular antenna. The RCC unit includes an internal GSM antenna which is compatible with standard cellular antennas. The cellular antenna isn't required in all deployment scenarios and the RCC unit can run without it if needed.

7.2 SCANNING ANTENNA

The scanning antenna together with the scanning device is used to:

Detect the presence of other cellular networks in the area and so avoid interference with existing cellular networks

Get a GPS fix, i.e. to determine the location (latitude, longitude) of the RCC unit

The scanning antenna needs as clear a view of the sky as possible and it is usually located close to the main cellular antenna. The scanning antenna isn't required in all deployment scenarios, and the RCC unit can run without it if needed.

8. RCC POWER REQUIREMENTS

The RCC unit supports a wide range of AC and DC power inputs. It can be run on mains, battery, or vehicle power supplies. Power consumption depends on the output power required at the cellular antenna which is adjustable and can be minimised for situations where low power consumption is required. The typical power requirement for the RCC unit is 300 W or less.

9. GROUND GATEWAY TECHNICAL SPECIFICATIONS

Altobridge's patented Access Management™ Ground Gateway software runs on an HP DL 360 with the following characteristics:

Processors: (2) Dual-Core Intel® Xeon® processor 5000

Memory: 32 GB of memory

Storage Controller: HP Smart Array 256MB Controller (RAID 0/1/5)

Slimline media bay supporting DVD, CD or Floppy drive

Network Controller: Dual NC373i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine

Form Factor: 1U Rack form factor

Dimensions: (H x W x D) 1.70 x 16.78 x 27.75 in

Weight: Maximum 37 lb (16.78 kg)

Power: 110 – 240 VAC

10. MOBILE SWITCHING CENTER (MSC) SPECIFICATIONS

- Up to 5000 subscribers per switching node (HLR)
- Standard Primary Rate ISDN interface to users PBX
- Optional Interworking Function (IWF) to support Secure calling to and from Type 1 encryption GSM cell phones
- GUI driven Operations & Maintenance Center (OMC) for ease of administration, subscription management and network troubleshooting
- Mountable into standard 19" or 23" rack
- Network Options:
 - GSN node for GPRS support
 - SMC-C for Short Messaging (text) support

11. REMOTE GATEWAY TECHNICAL SPECIFICATIONS

Cellular BTS: Supports a single Base Station Transceiver, 8 timeslots (TS0-7), single static RF channel for CO, which operates on one of the following PCS/Cellular spectrums:

- 900 MHz
- 1800 MHz
- 1900 MHz
- Supports adding or daisy-chaining multiple Base Station Transceivers.

Antenna

On-board 0dBi omni-directional (nominal)

Optional external antenna connections & power amplification for extended coverage (optional)

Dimensions: 28.3"(H) x 11.0"(W) x 3.0"(D)

Weight: 5.9 lbs (2.7kg)

Power: Power consumption: 13W, Input supply: 38 – 50 volt DC

Laptop PC

Altobridge's patented Access Management™ Remote Gateway software runs on a ruggedized PC i.e. Panasonic Toughbook™ CF30:

- Full magnesium alloy case with handle
- Mobile broadband and GPS capable
- Wireless-ready
- Intel® Core™ 2 Duo Mobile Processor
- 80GB shock-mounted removable HDD
- Sealed all-weather design
- Fully-rugged MIL-STD-810F tested
- Dimensions: 2.8"(H) x 11.9"(W) x 11.3"(D)
Weight: 8.4 lbs (3.8 kg)
Power: Lithium ion battery pack (10.65V, 8550mAh); Battery operation:@ 7 hours; AC Adapter:
AC 100V-240V 50/60Hz

Satellite Antenna

(Note: only one of many backhaul options available. Contact Altobridge for a list of other IP based options)

- Thrane & Thrane Explorer Series 300, 500, 700; COTM 527, 727
- Hughes HNS 9501; COTM under development
- Addvalue Sabre; COTM under development (i.e. Thrane & Thrane Explorer 500)
- Simultaneous voice and data communication
- High-speed data transfer up to 464 kbps
- Seamless global coverage
- Support for streaming video or audio at up to 128 kbps
- Flexible connections with Ethernet, USB and Bluetooth
- Easy system setup and operation
- Lightweight, splash and dust proof

- Dimensions: 8.5"(H) x 8.5"(W) x 2.1"(D)
Weight: 2.9lbs (1.3kg)
Power: Battery pack (10-16v DC), 110-220v AC

*** Pricing**

Hardware Option A - \$38,200.00

Hardware Option B - \$63,300.00

Hardware Option C - \$82,200.00

Additional set of four (4) TUC secured portals - \$15,700.00

Additional set of four (4) wireless VOIP phones - \$12,600.00

Additional Phased Array extender station - \$21,900.00

RCC 001 without Satcom & Case - \$32,700

RCC 001 without Satcom - \$39,600

RCC 001 Complete - \$48,000

RCC 001 Complete with Blue Sky - \$57,700

RCC 001 Complete with Ribbon Lift - \$66,400

Installation

1 Day Post Sales Support - \$1,000

Maintenance and Support

RCC 001 w/o Satcom & Case Annual Maintenance - \$6,500

RCC 001 w/o Satcom Annual Maintenance - \$7,900

RCC 001 Complete Annual Maintenance - \$9,600

RCC 001 Complete w/ BlueSky Annual Maintenance - \$11,500

RCC 001 Complete w/ Ribbon Lift Annual Maintenance - \$13,300

Training

**** System Administrator Training (per hour) - \$91.00**

1 Day Post Sales Support - \$1,000

3 Day Post Sales Support - \$3,100

5 Day Post Sales Support - \$5,100

* Prices indicated include customer discount

** Federal rate, no discount allowed

Warranty and Return Policy

Team MAT will provide a Customer Relationship Manager (CRM) who will receive orders and process them internally. A Business Developer will serve as this CRM and will work together with MAT's Contracting, Finance, and Technical departments to quickly and efficiently process orders. Support for Team MAT's emergency preparedness solution consists of a product replacement warranty. A defective product will be replaced immediately from Team MAT's stock of hot spares. The antenna warranty is a limited one year warranty.

Contact McLane Advanced Technologies

To find out more information, or to order please contact McLane Advanced Technologies:

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You can also visit the **State of Texas DIR GoDIRect Program** website to order and learn more.