

09/27/2010

Note: [ xxx ] Link to Additional Information



## REVIEW / EVALUATION

### Portable Satellite System for Remote Camp Use



**BACKGROUND** - The objective of this effort, was to find an alternative to the difficult setup (physical size and time spent for setup) of the existing PNW Team 3 & ORCA Hughes/Direcway DW6000 .98m Satellite System (~\$1500 w/ carrying case). The PNW Team 3 & ORCA satellite system(s) are utilized to provide minimal internet access to key positions (IMET, FBAN, SITL and WEBM) during the first 24-48 hours of ICP construction or for transferring information (IAPs & various Maps) electronically to remote camps. High Speed / Broadband service is generally procured for long term use at an ICP. Remote camps have traditionally not had internet access.

**SUMMARY** – If you are looking for an easy to use, portable system to provide minimal internet and phone service in **very remote locations**, the BGAN Wideye or Hughes units look like a smart choice. If you can use a PC Air Card in areas with cell phone coverage, that would be your first choice due to initial and operating costs, and internet speed.

**DETAILS** - PNW Team 3 purchased two different portable satellite systems, BGAN [[Wideye Sabre 1](#)] and [[Hughes 9201](#)]. Based on PNW Team 3's recommendation, ORCA purchased a BGAN Wideye Sabre 1 unit.

Each unit has proved to be **very easy** to setup/operate and train non-technical users in their setup/use. Setup is approximately 15 minutes or less and very painless. The included with purchase [[companion software](#)], loaded on a PC, is realistically required for both units.

Each unit is able to connect/lock on to the satellite in very limited “sky” visibility areas. It has been very surprising the locations that were inaccessible by the Directway System, but were accessible by the Wideye/Hughes units.

Satellite [[coverage/availability](#)] appears to be more than adequate for IMTs. The NOAA IMETs are using this technology with more expensive/robust hardware units.

Each unit has a battery power supply that seems to last about an hour under heavy use without recharging. Recharging from a vehicle inverter has proven effective.

The units are very light weight (~3-6 lbs.) and small (~ the size of ream of paper) in size [[Wideye / Hughes](#)]; making them easy to transport and setup.

Each unit has the capability of making satellite telephone calls. The BGAN unit comes with a phone handset . The Hughes does not come with a phone handset, requiring an additional cost if this feature is to be used.

One down side to all satellite telephone service is to place a call **TO** a satellite phone requires international calling feature/rights. Generally federal agencies block this feature for general employees. Making calls **FROM** a

satellite phone to cell phones, other satellite phones or landlines is not an issue. Standard satellite phone charges (~\$1.00/min) apply with these portable satellite units. [See attachment for pricing breakdown.]

The initial cost of the units appears to be cost effective (\$1300-2000). The operating cost may be prohibitive (\$8/Mb); but in our use, they were very cost effective given the alternatives to getting information to the remote camp, i.e. air or ground vehicle transportation of hard copy info and associated time delays.

The easy setup/use/transportability of these portable satellite units more than offsets the initial cost or operating costs compared to the Direcway Systems. We found ourselves not setting up the Direcway System because of difficult, time consuming process involved; even through it was inexpensive to operate (~\$100/month).

The vendor PNW Team 3 & ORCA utilized, [\[Spirit Wireless\]](#), has been very responsive to any requests for assistance and appears to be cost competitive with other vendors. Tech Support has also been very positive.

The BGAN Wideye unit maybe the easiest to setup and has secure access to the unit's setup options. It is a little slower (384 kbps) than the Hughes unit (492kbps). In actual use on the Oak Flat Fire / Selma Oregon (2010), the Wideye proved to be fast enough for downloading IAPs, public email, download IR maps, and making satellite phone calls. This unit is effectively limited to providing internet service for one PC.

The HUGHES unit is a little more difficult to setup (but not a limiting factor by any means) and does not have secure access to the unit's setup options; which may be a concern depending on the operating environment. It is faster (492 kbps) than the BGAN unit. This unit is rated for providing service to 2-3 PCs. PNW Team 3 has only utilized this unit in "parking lot tests." A router is required for multiple PC connections.

For use in a remote camp environment, it is recommended that the following additional items be purchased:

- |  |                                      |
|--|--------------------------------------|
| 1 – 400 Watt Vehicle Inverter/Charger (~\$50)      | 1 – Small Surge Protector (~\$10)    |
| 1 – Short Extension Cord (~\$10)                   | 1 – 25' Ethernet Patch Cable (~\$10) |
| 1 – Portable Battery Powered Printer (~ \$200-300) |                                      |
- [i.e., [Canon PIXMA iP90](#) or [HP Officejet H470 Mobile Printer](#)]

Note: A battery powered PC (i.e. laptop/notebook) is recommended.

PNW Team 3 & ORCA IMTs are looking at other power supply options, for use in remote camps, for the laptop/notebook PC, printer and satellite unit. We feel that a small clean power generator (~1000w), i.e. [\[Honda 1000iA\]](#), might be the best solution. Solar panels/blankets are being considered, but it is felt that a small, light weight gas generator may be more flexible. The vehicle inverter/charger is a solid, inexpensive option.

If you have any questions, please feel free to contact Doug Parker, PNW Team 3, or Jon Larson, ORCA, at 541-618-2200.



# BGAN AIRTIME PRICING

ANYTIME PLAN	
Fees	Rates
One-time activation fee (per unit)	\$59.00
Monthly Charge (for 10MB) <small>10MB charged per month, whether used or not. If 10MB not used, the unused amount will roll-over and accumulate so that it can be used any time within the 12-month contract. NOTE: After one year, service automatically renews as month-to-month unless cancelled.</small>	\$70.00
Airtime	Rates
Background IP	\$8.00 / MB
ISDN to fixed (Landlines/FBB/SBB)	\$6.00 / MB
Streaming Video @ 32 kbps	\$3.00 / MB
Streaming Video @ 64 kbps	\$6.50 / MB
Streaming Video @ 128 kbps	\$11.00 / MB
Streaming Video @ 256 kbps	\$19.00 / MB
Voice to Fixed (Landlines/FBB/SBB)	\$1.00 / Min.
Voice to Cellular	\$1.29 / Min
Voice to BGAN or Voicemail	\$0.85 / Min
SMS (short message service)	\$0.55 / Mssg
Static Public IP Address (Single Address)	\$28/Mo
Minimum 12 Month Commitment Period	

STANDARD PLAN	
Fees	Rates
One-time Activation Fee (per unit)	\$59.00
Monthly Service Fee	\$50.00 / Mo
Airtime	Rates
Background IP	\$8.00 / MB
ISDN to fixed (Landlines/FBB/SBB)	\$6.00 / MB
Streaming Video @ 32 kbps	\$3.00 / MB
Streaming Video @ 64 kbps	\$6.50 / MB
Streaming Video @ 128 kbps	\$11.00 / MB
Streaming Video @ 256 kbps	\$19.00 / MB
Voice to Fixed (Landlines/FBB/SBB)	\$1.00 / Min.
Voice to Cellular	\$1.29 / Min
Voice to BGAN or Voicemail	\$0.85 / Min
SMS (short message service)	\$0.55 / Mssg
Static Public IP Address (Single Address)	\$28.00 / Mo
Minimum 12 Month Commitment Period	

LIGHT PLAN	
Fees	Rates
One-time Activation Fee (per unit)	\$59.00 / Act
Monthly Service Fee	\$65.00 / Mo
Airtime	Rates
Background IP	\$7.00 / MB
ISDN to fixed (Landlines/FBB/SBB)	None
Streaming Video @ 32 kbps	None
Streaming Video @ 64 kbps	None
Streaming Video @ 128 kbps	None
Streaming Video @ 256 kbps	None
Voice to Fixed (Landlines/FBB/SBB)	\$1.00 / Min.
Voice to Cellular	\$1.29 / Min
Voice to BGAN or Voicemail	\$0.85 / Min
SMS (short message service)	\$0.55 / Mssg
Static Public IP Address (Single Address)	\$27.00 / address
Minimum 12 Month Commitment Period	

Minimum call duration / Increments	Min Call Dur
Voice	30s
ISDN	30s
Streaming	30s
Standard IP	0.05MB

Communication to Other Satellite Networks		Rates
<b>LSD</b>	Inmarsat B Voice / Fax / Data	\$6.25 / min.
	Inmarsat M Voice / Fax / Data	\$5.50 / min.
	Inmarsat Mini-M/GAN/Fleet/Swift Voice	\$4.50 / min.
	Inmarsat Aero Voice	\$9.50 / min.
	Iridium Voice	\$9.50 / min.
	Globalstar Voice	\$9.50 / min.
	Thuraya Voice	\$7.75 / min.
	Other MSS Carriers	\$13.75 / min.
<b>ISDN</b>	Inmarsat B HSD	\$27.00/ min.
	Inmarsat GAN/Fleet/Swift HSD	\$ 23.00/ min.

All prices in US\$

Government taxes, duties and fees, including Federal Universal Service, Regulatory and Administrative charges do apply