



# **Inmarsat**

## **BGAN High Data Rate Service**

  

### **Service Launch Description**

*Channel Briefing Notes*

*3 December 2013*

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# 1. Introduction

BGAN has become a critically important tool for broadcasters in the seven years since its original launch. In particular the guaranteed bit rate streaming services have provided ground-breaking capabilities in live video newsgathering from virtually any frontline news location globally.

Broadcasters who have seen the improved video quality of BGAN High Data Rate (BGAN HDR) have been extremely enthusiastic about it. This confirms the positioning of the product not only as a standalone solution but also as a way to guarantee cellular bonding solutions.

This document describes the BGAN HDR services that have been formally launched today, **3 December 2013**, available via the new **Cobham EXPLORER 710** terminal.

## 2. Service overview

BGAN HDR services are designed to achieve maximum performance for a single mobile terminal within a specific bandwidth, either 200kHz for full channel or 100kHz for half channel.

The services will be available on-demand, on a best-effort basis, subject to the availability of spectrum in any spot-beam.

BGAN HDR services will be augmenting the existing BGAN portfolio of streaming services.

BGAN HDR services will not be available on existing BGAN Class 1 terminals (HNS 9201 and Thrane EXPLORER 700).

The first terminal to access BGAN HDR services is the Cobham EXPLORER 710.

BGAN HDR services are enabled thanks to a new set of BGAN bearers implemented in both the ground network (RAN4.0) and the EXPLORER 710 terminal.

When a mobile terminal is granted access to a BGAN HDR service variant, a block of spectrum is dedicated to this mobile terminal, in a model similar to the existing BGAN X-Stream service.

The symmetric full channel variant of BGAN HDR services will occupy a 200kHz bandwidth channel in both directions.

The symmetric half channel variant of the HDR services will occupy a 100kHz bandwidth channel in both directions.

The **asymmetric full channel and asymmetric half-channel** variants are still being tested and refined. Cobham are working on a resolution and a firmware release is expected to be available late 2013.

		FORWARD direction (network to mobile)							Half channel		Full channel
		8k	16k	32k	64k	128k	176k	256k	HDR	X-stream	HDR
RETURN direction (mobile to Network)	8k										
	16k		Commercially available								
	32k			Commercially available							
	64k				Commercially available						
	128k					Commercially available					
	176k						Commercially available				
	256k							Commercially available			
	Half channel HDR				Not available for 3 Dec launch				Launched commercially 3 Dec 2013		
	X-stream									Commercially available	
	Full channel HDR				Not available for 3 Dec launch						Launched commercially 3 Dec 2013

Table 1: BGAN HDR services – extending the portfolio

Table 1 shows the 2 BGAN HDR variants to be made commercially available on 3 December 2013. **The asymmetric variants are not yet available** for service introduction.

### 3. Service throughput

#### Important background information for symmetric full channel BGAN HDR:

The minimum throughput expected is **580kbps** (at bearer level<sup>1</sup>), providing the terminal is accurately pointed to the satellite and data has been sent;

Due to the way the network operates, it may take up to 20 seconds for this throughput to be achieved.

The average throughput expected is between **600 and 700kbps** (at bearer level), *providing* the terminal is accurately pointed to the satellite.

The peak throughput expected is over **850kbps** (at bearer level), *providing* the terminal is accurately pointed to the satellite.

#### Important background information for symmetric half channel BGAN HDR:

<sup>1</sup> At Bearer level means the throughput available on the BGAN air interface. This is not the throughput available at end user application level, which typically is about 10% lower than the Bearer throughput.

The minimum throughput expected is **280kbps** (at bearer level), providing the terminal is accurately pointed to the satellite and data has been sent; Due to the way the network operates, it may take up to 20 seconds for this throughput to be achieved.

The average throughput expected is between **300 and 350kbps** (at bearer level), *providing* the terminal is accurately pointed to the satellite.

The peak throughput expected is over **410kbps** (at bearer level), providing the terminal is accurately pointed to the satellite.

## 4. Service features

BGAN HDR services are charged per minute and are fixed for the duration of the connection, *irrespective of the throughput achieved during the connection*.

BGAN HDR services require provisioning of the SIM for the service requested to be granted.

An updated version of Launchpad **will not** be available at service launch, therefore the EXPLORER 710 **Web MMI** or LED screen are the only means to activate the services.

A BGAN HDR service may be used in conjunction (simultaneously) with a single standard AMBE voice call<sup>2</sup>, but not in conjunction with ISDN, another data session or 3.1kHz voice service.

BGAN HDR services are available globally down to 5 degree elevation angle under the Inmarsat I-4 coverage.

BGAN HDR services are available in any spot-beam, providing enough physical resources in the network are available.

BGAN HDR services may be pre-empted if a distress voice call (from a different terminal in the same beam) needs to be set-up and spectrum resources are required.

The AMBE call may be placed before or during the BGAN HDR session.

The AMBE call may be allowed to continue if the BGAN HDR session is terminated<sup>3</sup>.

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<sup>2</sup> It should be noted that the performance (achieved throughput) of the HDR session will be impacted when running a concurrent voice call.

<sup>3</sup> From an operational point of view, when the HDR session is terminated, the carrier is moved back to the pool. Therefore the call can only continue if another carrier is available at that time.

Simultaneous operation of ISDN or 3.1kHz calls with a BGAN HDR session is not supported.

No background session can be active in parallel to a BGAN HDR session, nor other Streaming IP sessions.

## 5. Cobham EXPLORER 710

The Cobham EXPLORER 710 will be the only BGAN terminal available at launch with BGAN HDR capabilities.



The firmware available and recommended by Cobham for BGAN HDR Service launch is **Release Number 1.01**. This is available for download from the Inmarsat corporate web site support page (<http://www.inmarsat.com/support/bgan-firmware/>).

To upgrade the terminal, download the software on a computer connected to the EXPLORER 710 and follow the instructions provided on the EXPLORER 710 Web MMI.

### Features and interfaces available at service launch with Release Number 1.01:

- Supports standard IP and all symmetric streaming services (including 256k and BGAN X-Stream)
- 3.2kg; 332 x 279 x 54mm
- Rechargeable, hot-swappable battery, 36h stand-by
- Wireless Access Point (802.11 b/g)

- > Built-in SIP server<sup>4</sup>
- > USB Host interface
- > New Web MMI, allowing same user experience if using laptop, tablet or smartphone
- > 1 Analogue RJ-11 phone/fax interface
- > 2 LAN interface (RJ-45 with Power over Ethernet)
- > 1 ISDN interface

**Features NOT supported with the Cobham EXPLORER E710 firmware release Number 1.01:**

- > SMS service is **not** supported
- > Asymmetric BGAN HDR services are **not** supported in this firmware release.
- > Plug and play bonding (Ethernet cable) is **not** available

**Known issues with the Cobham EXPLORER E710 firmware release Number 1.01:**

- > IP Header compression (see Cobham release notes)
- > Disabling Wi-Fi during a PDP context will cause the Ethernet connection and BGAN session to terminate
- > Some audio distortion might occur in voice calls if a user speaks too loud
- > The terminal might hang if left in pointing mode for too long time – this can be recovered by a reboot
- > Does **not** support Internet Explorer versions prior to 'IE9.0'
- > LaunchPad is **not** supported

**For a complete list of those features that are / are not supported with the Cobham EXPLORER 710 firmware release Number 1.01 please refer to the terminal release notes from Cobham.**

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<sup>4</sup> Enable users to make phone calls through their smartphones (VoIP between smartphone and E710, then AMBE voice service on BGAN). Suggested application available for IOS and Android is Zoiper, which is free, but it is not limited to this single app.