



# Bitstream Service Product Description

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## Version Control

Version	Status	Update	Effective Date
34.1		Rebranded	October 2015
V35.0	Final	This document is based on V34.1 Implementation of Standardised Change Control.	13/06/2017

This document follows change control procedure:

**Proposed** is defined as a document status when the approved document is uploaded to Proposals Section of open eir Website.

**Final** is defined as a document status when the approved document is uploaded to the relevant section of the open eir Website following the publication period.

### For information:

- Historical Document History Table located at end of Document.
- Publish means the action of uploading a document to the website regardless of status or location.
- **If there are changes to the document between 'Proposed' and 'Final', change control operates.**



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## 1 Introduction

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This paper defines the service for “ADSL/ADSL2plus Bitstream” (hereafter referred to as Bitstream). Bitstream is defined as a broadband access product, which utilises ADSL/ADSL2plus in the local loop, and which is then transported across the open eir network to an open eir ADSL/ADSL2plus Regional POP

## 2 Product Description

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### 2.1 Summary of Key Features

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The Bitstream service is comprised of two types of services:

1. POTS based Bitstream which is a voice and an ADSL/ADSL2plus service to be integrated over the same 2-wire copper pair, and
2. Standalone Bitstream allows an ADSL/ADSL2plus service to be delivered over a 2- wire copper pair without a PSTN voice telephony service.

The key features of each type are as follows:

#### **POTS based ADSL/ADSL2 plus service**

The copper pairs available for the open eir Bitstream service are all PSTN copper lines currently in service within the defined ADSL/ADSL2plus regional areas (currently simultaneous use of ADSL/ADSL2plus with ISDN or leased lines is not available). “In service” is further defined as an existing copper pair where open eir receives a PSTN line rental.

The suitability of copper pairs will be dependent upon individual Pre-qualification results (See Section 2.6 for further details.). The open eir Bitstream service is not a ubiquitous service and will be rolled out on a phased basis. (An up to date Deployment Plan can be obtained from the Wholesale Customer’s Wholesale Account Manager or one is e-mailed on a weekly basis when new Exchanges are deployed, please contact your Account Manager in regards to joining the mailing list.)

The points of demarcation for the open eir Bitstream service are the NTU in the subscriber’s premises and the handover point from open eir to the Wholesale Customer’s network (i.e., open eir ADSL/ADSL2plus Regional POPs within the defined ADSL/ADSL2plus regional areas). The Wholesale Customers will rent the Bitstream service from open eir. open eir’s Bitstream service may be defined as follows in terms of the physical and service elements required to deliver the service.

ADSL/ADSL2plus is available in certain locations as defined in the DSL deployment plan.

#### **Standalone Bitstream**

The above apply with the following key distinctions:

- The line doesn’t have to satisfy the “In Service” requirement and
- It is important for Operators to note and inform customers that Emergency Calls are not supported on the Standalone offering.

*1 ADSL/ADSL2plus is available in certain locations as defined in the DSL deployment plan*

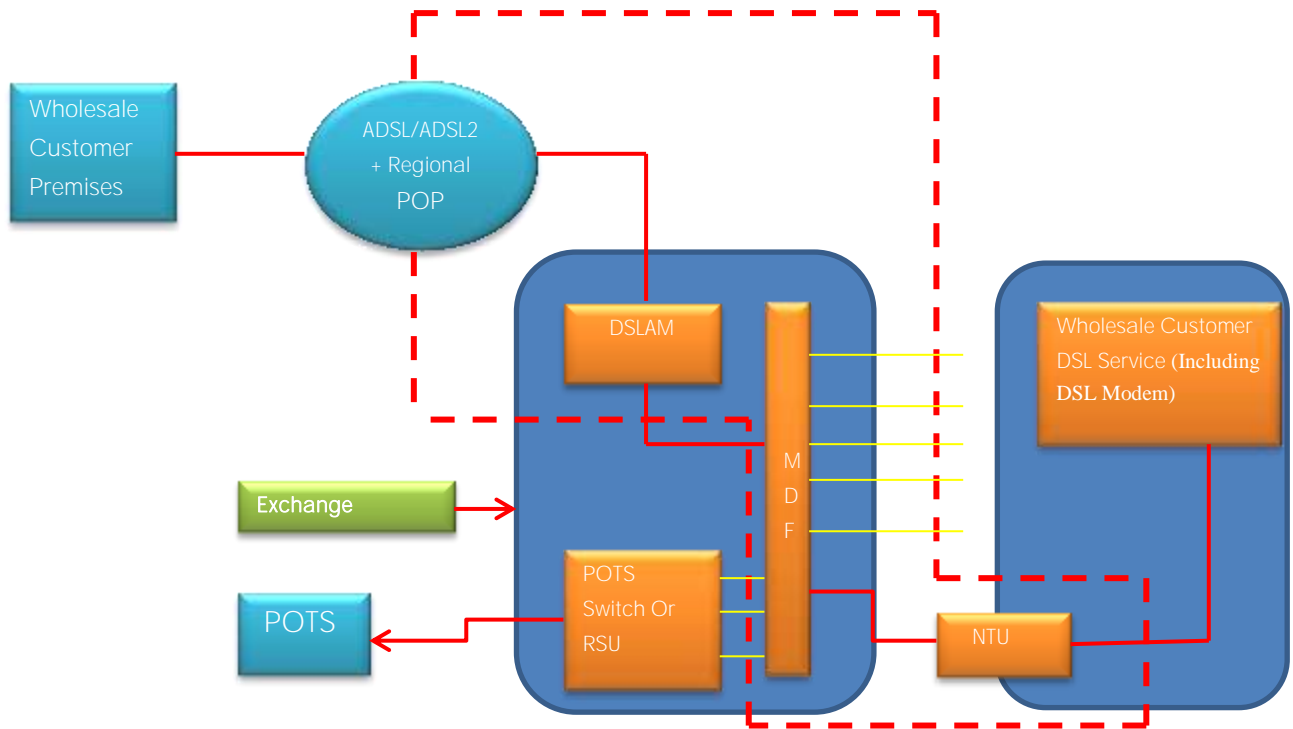
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## 2.2 Physical

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The physical definition of the open eir Bitstream service is as follows:

- The open eir Bitstream service will be made available over copper pairs currently in-service within the defined ADSL/ADSL2plus regional areas, where current technology allows. “In service” is further defined as an existing copper pair where open eir receives a PSTN line rental. The suitability of the copper pairs will be dependent upon individual pre-qualification results.
- The open eir Standalone Bitstream service will be made available over copper pairs within the defined ADSL/ADSL2plus regional areas, where current technology allows. The suitability of the copper pairs will be dependent upon individual pre-qualification results.
- open eir is physically responsible from the open eir ADSL/ADSL2plus Regional POPs (within the defined ADSL/ADSL2plus regional areas) through to the defined service termination at the subscriber’s site. (See Appendix 1 for the service termination point physical interface specifications.)
- The NTU is the Bitstream service termination point. (See Appendix 2 for parameters of the NTU interface.) open eir will own and maintain the NTU.
- Where required, the Wholesale Customer will install the NTU at the subscriber’s site, according to standard open eir policies for installation of an NTU in a subscriber’s premises.
- Backhaul from the open eir ADSL/ADSL2plus Regional POPs within the defined ADSL/ADSL2plus regional areas (i.e., open eir handover points) to the Wholesale Customer’s nominated handover point is outside the Bitstream service. Details on open eir’s Bitstream Connection Service/Bitstream Ethernet Connection Service (BECS), of which Wholesale Customers may avail to connect from the Bitstream handover point to the Wholesale Customer’s POP, may be found in the Bitstream Connection Service/Bitstream Ethernet Connection service product description. Wholesale Customers are responsible for ensuring that required backhaul is available prior to ordering the Bitstream Service.



**Figure 1:** open eir Bitstream Service Physical Definition.

The elements within the dotted line in the figure 1 represent the physical definition of the Bitstream Service.

- For Standalone Bitstream the copper line is connected to the line interface card for line test purposes only and the DSLAM.
- For the Bitstream Managed Backhaul (Bitstream MB) product a new VLAN is required on the Bitstream Ethernet Connection Service to carry the Bitstream MB traffic separately to the existing Bitstream IP traffic. This VLAN will form part of the existing Bitstream (Ethernet) Connection Service and will be governed by the Bitstream (Ethernet) Connection Service product description.
- open eir’s **Bitstream** MB and Bitstream IP products require Bitstream Ethernet Connection Service Backhaul.
- open eir’s **Bitstream** VC products require Bitstream Connection Service Backhaul. There is a separate Bitstream Ethernet Connection Service and Bitstream Connection Service Product Description.
- open eir’s **Bitstream** Ethernet Access (Bitstream EA) products require Wholesale

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Ethernet Interconnect Link (WEIL) Backhaul.

- There is a separate Wholesale Ethernet Interconnect Link (WEIL) Product Description.

## 2.3 Service

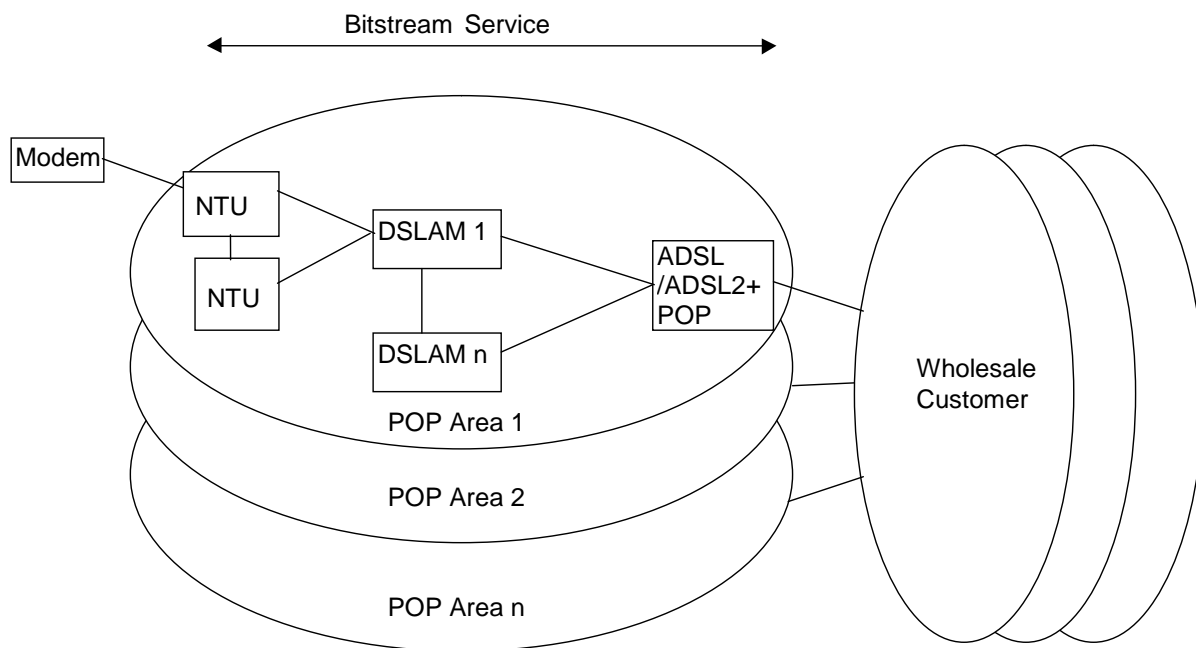
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The service definition of Bitstream is as follows:

- Order Handling and Provisioning: process by which subscribers are activated onto the DSLAM ports and configured across the core transmission to the open eir ADSL/ADSL2plus regional POPs (within the defined ADSL/ADSL2plus regional areas).
- Bitstream Port Transfer: process by which a Gaining Wholesale Customer may move a Subscriber port from the Losing Wholesale Customer's network to the Gaining Wholesale Customer's network to a Bitstream product of the Gaining Wholesale Customer's choosing. Bitstream Port Transfer is not available with open eir's Bitstream VC products and Bitstream EA products.
- open eir Provisioning Completion: subscriber provisioning will be completed by the Required by Date as indicated by the Wholesale Customer in the Appointments Database.
- NTU Installation: Where required, the Wholesale Customer will install the NTU in accordance with the open eir NTU Installation Manual.
- The Wholesale Customer must be able to prove installation faults out of the network as per the open eir NTU Installation Manual and the Industry Process Manual. (See section 2.6 for a more detailed description of the order handling process.)
- open eir will commence billing from the Completion Date or the Required by Date indicated by the Wholesale Customer in the Appointments Database, whichever is later.

The Bitstream service topology is as follows:





**Figure 2:** open eir Bitstream Service Topology

For the Bitstream 1M/256K and 512K/128K products (with ATM interface) each open eir ADSL/ADSL2plus Regional POP will service particular exchanges, as defined in the Deployment Plan. Wholesale Customer traffic will be handed over at each respective open eir ADSL/ADSL2plus Regional POP.

For the Bitstream “up to” 12M/1.1M, “up to” 8M, “up to” 7M, “up to” 3M and 1M/128K Rate Adaptive (RA) products (with IP interface) each open eir ADSL/ADSL2plus Regional POP may service all exchanges within the ADSL/ADSL2plus rollout area, as defined in the Deployment Plan.

For the Bitstream “up to” 24M, 18M/2M and “up to” 12M/1M Rate Adaptive (RA) products (with IP interface) each open eir ADSL2plus Regional POP may service exchanges within the ADSL2plus rollout area, as defined in the Deployment Plan.

For the Bitstream VC products at 6M/512K, 4M/256K, 2M/256K and 1M/128K (with ATM interface on a VC basis), each open eir ADSL/ADSL2plus Regional POP may service all ASAM exchanges within the ADSL/ADSL2plus rollout area, as defined in the Deployment Plan.

For the Bitstream MB products (“up to” 8M and “up to” 24M) each open eir NGN Regional POP may service all exchanges within the NGN rollout area, as defined in the Deployment Plan.

For the Bitstream EA products at 1M/128K, 2M/384K, 4M/512K, 6M/672K, 8M/1M, 8M/2M, 10M/1.5M, 12M/2M and 16M/1.2M each open eir NGN Regional POP may service all ISAM exchanges within the NGN rollout area, as defined in the Deployment Plan.

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## 2.4 Product Offerings

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### 2.4.1 Bitstream Product Sets

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There are four open eir Bitstream Product Sets: Bitstream IP

Bitstream MB

- POTS<sup>2</sup> based Bitstream MB
  - POTS<sup>2</sup> based Bitstream MB
  - Standalone Bitstream MB
- Standalone Bitstream
- MB Bitstream VC
- Bitstream EA

#### 2.4.1.1 Bitstream IP

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Bitstream Internet Protocol (Bitstream IP) service is the open eir Broadband Access product.

This array of products uses world-wide standard IP protocols for the transfer of data. open eir's Bitstream IP Products range from speeds of 1Mb/s to 24Mb/s on Download and 128kb/s to 2Mb/s on Upload, they are rate adapted and are provided at the 12:1 or 48:1 planning ratios. open eir's Bitstream IP service offers UBR (Unspecified Bit Rate) category of service.

#### 2.4.1.2 Bitstream MB

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Bitstream Managed Backhaul (Bitstream MB) is the open eir broadband product which leverages open eir's Next Generation Network (NGN).

Bitstream MB is designed to address the major challenges facing open eir Wholesale Customers in how best to meet the increasing demand from consumers and businesses for bandwidth, while at the same time carefully managing costs, and also maintaining control over quality of service. Bitstream allows you greater control over your own broadband product definition and comprises of two elements.

The first element consists of DSL port connection capable of delivering either 8Mb and 24Mb at NGN enabled exchanges. The second element consists of dedicated VLANs delivering the aggregated Bitstream traffic over the open eir Customer's BECS.

Bitstream MB is capacity managed by open eir wholesale to avoid congestion; therefore no planning or contention ratios apply to these products. This provides Wholesale Customers with the capability to define contention ratios.

There are two variants of Bitstream Managed Backhaul; POTS based Bitstream MB and Standalone Bitstream MB.

<sup>2</sup>POTS is an acronym for 'plain old telephone service' and refers to the analogue telephone service provided over a copper twisted pair landline. It is used to distinguish that service from other voice services, such as Voice over Internet Protocol (VoIP) service provided over an all-digital network.



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POTS based Bitstream MB provides PSTN and an 8Mb or 24 Mb Bitstream MB products to the end customer and utilises a dedicated VLAN to deliver the aggregated traffic over open eir Customer's BECS.

Standalone Bitstream MB provides an 8Mb or 24M Bitstream MB access product and will utilise the same dedicated VLAN as the POTS based product. As this service does not have a telephone number a unique circuit reference number will be provided for each line in the form of 8883-1234567. This service will connect to the line card for the purposes of line test but will have no PSTN service capability.

### 2.4.1.3 Bitstream VC

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Bitstream Virtual Circuits (Bitstream VC) service is a Bitstream service with Asynchronous Transmission Mode (ATM) interface.

Bitstream VC allows open eir Customers' to benefit from ATM-based Bitstream product without having to pre-provision the same level of ATM network capacity (VP's). An order for ATM Bitstream VC requires only an ATM pipe from the Access Seeker premises to an ADSL Regional PoP to be provisioned. open eir will assign one VC per DSLAM port. open eir's Bitstream ATM service offers both the VBR (Variable Bit Rate) and UBR (Unspecified Bit Rate) category of service.

### 2.4.1.4 Bitstream EA

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Bitstream Ethernet Access (Bitstream EA) utilises the copper access network to connect to the NGN network. The product will be available in NGN enabled exchanges only and line suitability will be determined by the Prequalification result

The product provides a QoS (Quality of Service) enabled secure connection from the customer premises to the Bitstream Operator interconnection point. An individual S-VLAN will be built for each customer connection through the open eir core network to the hand-off point. This connection will be available at a number of bandwidth speeds and at varying QoS levels.

The existing Wholesale Ethernet Interconnect Link (WEIL) product will be utilised for the hand-off of Bitstream Ethernet Access service to the Bitstream Operator. A single Service Access Bandwidth (SAB) on the WEIL will be allocated to this service.

## 2.4.2 Products

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The open eir Bitstream service will consist of IP, MB and VC (ATM) products, which are defined to the parameters listed below. open eir may introduce other products on a phased basis.

\* = This product is available in all ADSL2plus enabled exchanges only. For a list of all ADSL2plus exchanges please refer to the latest deployment plan.

\*\* = For the "up to" products please see the table "profiles associated with "up to" products" for associated profiles.

\*\*\* = This product is available in all NGN enabled exchanges only. For a list of all NGN exchanges please refer to the latest deployment plan.

See Appendix 3 for Profiles Associated with the below listed "up to" Products

See Appendix 4 for previous version of Products

### 2.4.2.1 Bitstream IP Product List

Products Available from 4 <sup>th</sup> July 2011					
Product	Downstream Port Speed (kb/s)	Upstream Port Speed (kb/s)	Interface	Class of Service	Planning Ration
Open eir Bitstream Sprint IP(*)(**)	“up to” 24576 RA	“up to” 1024 RA	IP	UBR	12:1 outside NGN Exchanges Uncongested within NGN Exchanges
Open eir Bitstream Turbo IP Plus(*)	“up to” 18432 RA	2048 RA	IP	UBR	12:1 outside NGN Exchanges Uncongested within NGN Exchanges
open eir Bitstream Arrow IP(*)(**)	“up to” 12288 RA	“up to” 1024 RA	IP	UBR	12:1 outside NGN Exchanges Uncongested within NGN Exchanges
open eir Bitstream Swift IP(**)	“up to” 12288 RA	“up to” 1120 RA	IP	UBR	12:1 outside NGN Exchanges Uncongested within NGN Exchanges
open eir Bitstream Zoom IP(*)(**)	“up to” 24576 RA	“up to” 768 RA	IP	UBR	48:1
open eir Bitstream Rapid IP(**)	“up to” 7168 RA	“up to” 384 RA	IP	UBR	48:1
open eir Bitstream Expand IP(**)	“up to” 3072 RA	“up to” 384 RA	IP	UBR	48:1
open eir Bitstream Connect3	1024 RA	128 RA	IP	UBR	48:1
open eir Bitstream Kronos	1024 RA	128 RA	IP	UBR	48:1

3 Where an Access Seeker's Subscriber has ordered a 1M Bitstream RA product with an IP interface, but after order completion cannot get service, the Access Seeker may offer the option of changing the Subscriber's product speed profile to one of three possible lower speed profiles using the Mid-Band process. Details of these profiles and the process for availing of this service are outlined in the Bitstream Industry Process Manual, as

published on [www.openeirwholesale.ie](http://www.openeirwholesale.ie). Where the Access Seeker's Subscriber chooses to avail of one of these alternative profiles and they are able to get a service, standard pricing will apply for the 1M Bitstream RA product as ordered. This process is available from 3rd January 2007.

4 open eir Bitstream Kronos is a time based pay as you go Bitstream product. For details on pricing and usage allowances included please refer to the ADSL/ADSL2plus Bitstream Service Price List on the open eir website at [www.openeir.ie](http://www.openeir.ie).

### 2.4.2.2 Bitstream MB Product List

Products Available from 4 <sup>th</sup> July 2011					
Product	Downstream Port Speed (kb/s)	Upstream Port Speed (kb/s)	Interface	Class of Service	Planning Ration
Open eir 8Mb Bitstream MB(**) (***)	"up to" 8192	"up to" 512	IP	UBR	Uncongested <sup>5</sup>
Open eir 24Mb Bitstream MB(**) (***)	"up to" 24576	"up to" 768	IP	UBR	Uncongested

Products Available from July 2013					
Product	Downstream Port Speed (kb/s)	Upstream Port Speed (kb/s)	Interface	Class of Service	Planning Ration
Standalone Open eir 8Mb Bitstream MB(**) (***)	"up to" 8192	"up to" 512	IP	UBR	Uncongested <sup>5</sup>
Standalone Open eir 24Mb Bitstream MB(**) (***)	"up to" 24576	"up to" 768	IP	UBR	Uncongested

### 2.4.2.3 Bitstream VC Product List

Products Available from 4th July 2011					
Product	Downstream Port Speed (kb/s)	Upstream Port Speed (kb/s)	Interface	Class of Service	Planning Ration
open eir Bitstream Comet VC Gold	6144	512	ATM	VBR	5:1
open eir Bitstream Comet VC Plus	6144	512	ATM	UBR	10:1
open eir Bitstream Comet VC	6144	512	ATM	UBR	10:1
open eir Bitstream Sonic VC Gold	4096	256	ATM	VBR	10:1
open eir Bitstream Sonic VC Plus	4096	256	ATM	VBR	24:1
open eir Bitstream Sonic VC	4096	256	ATM	UBR	24:1
open eir Bitstream Express VC Gold	2048	256	ATM	VBR	10:1
Open eir Bitstream Express VC Plus	2048	256	ATM	VBR	24:1
Open eir Bitstream Express VC	2048	256	ATM	UBR	24:1
open eir Bitstream Swift VC Gold	1024	128	ATM	VBR	10:1
open eir Bitstream Swift VC Plus	1024	128	ATM	VBR	24:1
open eir Bitstream Swift VC	1024	128	ATM	UBR	24:1

### 2.4.2.4 Bitstream EA Product List

Products Available from 1 <sup>st</sup> August 2012					
Product	Downstream Port Speed (kb/s)	Upstream Port Speed (kb/s)	Interface	Class of Service	Planning Ration
Bitstream EA - 1Mb/128kb - Std	1024	128	ETH	0% EF	Uncongested
Bitstream EA - 1Mb/128kb - Plus	1024	128	ETH	5% EF	Uncongested
Bitstream EA - 1Mb/128kb - Gold	1024	128	ETH	10% EF	Uncongested
Bitstream EA - 2Mb/384kb - Std	2048	384	ETH	0% EF	Uncongested
Bitstream EA - 2Mb/384kb - Plus	2048	384	ETH	5% EF	Uncongested
Bitstream EA - 2Mb/384kb - Gold	2048	384	ETH	10% EF	Uncongested
Bitstream EA - 4Mb/512kb - Std	4096	512	ETH	0% EF	Uncongested
Bitstream EA - 4Mb/512kb - Plus	4096	512	ETH	5% EF	Uncongested
Bitstream EA - 4Mb/512kb - Gold	4096	512	ETH	10% EF	Uncongested
Bitstream EA - 6Mb/672kb - Std	6144	672	ETH	0% EF	Uncongested
Bitstream EA - 6Mb/672kb - Plus	6144	672	ETH	5% EF	Uncongested
Bitstream EA -- 6Mb/672kb - Gold	6144	672	ETH	10% EF	Uncongested



Product	Downstream Port Speed (kb/s)	Upstream Port Speed (kb/s)	Interface	Class of Service	Planning Ration
Bitstream EA - 8Mb/1Mb - Std	8192	1024	ETH	0% EF	Uncongested
Bitstream EA - 8Mb/1Mb - Plus	8192	1024	ETH	5% EF	Uncongested
Bitstream EA - 8Mb/1Mb - Gold	8192	1024	ETH	10% EF	Uncongested
Bitstream EA - 8Mb/2Mb - Std	8192	2048	ETH	0% EF	Uncongested
Bitstream EA - 8Mb/2Mb - Plus	8192	2048	ETH	5% EF	Uncongested
Bitstream EA - 8Mb/2Mb - Gold	8192	2048	ETH	10% EF	Uncongested
Bitstream EA - 10Mb/1.5Mb - Std	10240	1536	ETH	0% EF	Uncongested
Bitstream EA - 10Mb/1.5Mb - Plus	10240	1536	ETH	5% EF	Uncongested
Bitstream EA - 10Mb/1.5Mb - Gold	10240	1536	ETH	10% EF	Uncongested
Bitstream EA - 12Mb/2Mb - Std	12288	2048	ETH	0% EF	Uncongested
Bitstream EA - 12Mb/2Mb - Plus	12288	2048	ETH	5% EF	Uncongested
Bitstream EA - 12Mb/2Mb - Gold	12288	2048	ETH	10% EF	Uncongested
Bitstream EA - 16Mb/1.2Mb - Std	16384	1216	ETH	0% EF	Uncongested
Bitstream EA - 16Mb/1.2Mb - Plus	16384	1216	ETH	5% EF	Uncongested
Bitstream EA - 16Mb/1.2Mb - Gold	16384	1216	ETH	10% EF	Uncongested





## 2.5 PVCs per Subscriber/DSLAM Port

open eir will assign one VC per DSLAM port.

## 2.6 open eir's Local Loop

open eir plant is primarily a combination of 0.4 MM and 0.5 MM copper plant. There is a small quantity of 0.32 MM and 0.6 MM copper plant. Actual cable gauge per customer will not be known. Further capabilities of DMT can be observed in the Issue 2, Category 2, ITU Technical Requirement G.992.5 and Testing under ETSI specification ETR328

Buried/Overhead Cables (Typical Losses)	
Type of Cable Conductor Diameter	Attenuation Insertion @ 300 kHz dB/km ADSL/ADSL2plus
C.T. 1031 0.4 MM	14
With Conductors 0.5 MM	12
C.T. 1031/1033 0.6 MM	10

## 2.7 Order Handling Process

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The Wholesale Customer will follow these steps in submitting an order:

- Wholesale Customer logs onto the open eir Bitstream service order management system, Unified Gateway (UG) via the web/internet. (open eir will provide the URL address and a unique ID and log on).
- Wholesale Customer enters subscriber's full telephone number (including STD code) or ARD key
- The UG provides a metallic pair indicator (reference number, Green/Amber /Red indicator).

**The UG pre-qual survey is a process whereby:**

- An indication is provided as to the suitability of the metallic pair to support the open eir Bitstream Service at a particular point in time (i.e. "snapshot" in time).
- It is simply an estimate based on available technology and equipment at a particular point in time. It confers no responsibility or liability on open eir, with respect to actual physical capability of the line.
- The UG pre-qual will be made available to Wholesale Customers to obtain an indication as to whether a particular metallic pair is potentially suitable to support ADSL/ADSL2plus.

- The Wholesale Customer can submit an order for service using the Unified Gateway by entering a Provide order. The Unified Gateway will show the products available to the Wholesale Customer based on the pre-qualification result. The Wholesale Customer has the option to select a specific appointment date or the UG will automatically select the next available appointment slot based on the delivery SLA.
- Individual order handling types are detailed in the Industry Process Manual.

There is a UG Guidelines document located on [www.openeir.ie](http://www.openeir.ie) at

<http://www.openeir.ie/Customer-Service/Unified-Gateway/>

All processes are outlined in the Bitstream Service IPM which is located on the web-site at

<http://www.openeir.ie/Products/Access/Bitstream/Bitstream-IP/?pageid=330&tab=0>

The UG Data Contract and the IPM should be used in conjunction with the Product Description for all ordering of a Bitstream Product.

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## 2.7.1 Migrations

Bitstream Migrations are defined as movement within Bitstream IP and Bitstream MB product sets. It can also be between these two product sets.

There is also Migrations between Bitstream and Line-Share and vice versa defined as either Line-Share Migrations or Line-Share to Bitstream Migrations.

Bitstream Migrations can be upgrades or downgrades.

All upgrade and downgrade fees will apply, unless agreed otherwise.

All end user's being migrated to a Bitstream Product will be committing to re-start their Minimum Term Contracts. Minimum term is explained in Section 6.1.

Prior to migrations to Bitstream MB products the requisite VLAN and Realm set up must be completed.

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### 2.7.1.1 Bulk Migrations

Bulk Migrations will be a minimum of 15 orders per exchange in one day.

Bulk migrations must be planned in advance. Notification of planned migrations to be agreed between open eir and Customer.

Substantial bulk migrations may require project management by open eir. This service may be charged for.

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## 2.8 Service Installation and Testing

The Wholesale Customer will install and test the NTU in line with the open eir NTU Installation Manual. The Wholesale Customer will be responsible for installing their own modem and testing their end to end service from the subscriber's premises to the Wholesale Customer's own node.

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## 2.9 Service Parameters

ADSL/ADSL2plus modems and planning limits are based on:

Category II of the ITU TECHNICAL RECOMMENDATION G.992.1: Annex-A for ASYMMETRICAL DIGITAL SUBSCRIBER LINE (ADSL) TRANSCEIVER and G.992.5 Annex-A / Annex M or ASYMMETRICAL DIGITAL SUBSCRIBER LINE (ADSL2plus) TRANSCEIVER.

ETSI (European Telecommunications Standards Institute) recommendations on Noise Models as noted in ETSI Specification - ETR328.

ETSI TS 101 388 - Asymmetric Digital Subscriber Line (ADSL) - European specific requirements [ITU-T Recommendation G.992.1 modified]

ETSI TS 105 388 - Asymmetric Digital Subscriber Line (ADSL2plus) - European specific requirements [ITU-T Recommendation G.992.5 modified]

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## 2.10 Access Regions

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The Bitstream service is not a ubiquitous service. The service will be rolled out on a regional basis within specific exchanges. The Bitstream regions are defined by the Bitstream service exchanges within those regions.

- The Bitstream IP products will be available at all Bitstream identified exchanges. The Bitstream VC products will be available at ASAM exchanges only.
- The Bitstream MB products will be available at NGN enabled exchanges only.
- The Bitstream EA products will be available at ISAM exchanges only at NGN enabled exchanges only.

For details on regions and exchanges currently available, Wholesale Customers should contact their Wholesale Account Manager for a current Deployment Plan.

An up to date Deployment Plan can be obtained from the Wholesale Customer's Wholesale Account Manager or one is e-mailed on a weekly basis when new Exchanges are deployed, please contact your Account Manager in regards to joining the mailing list.

## 2.11 open eir ADSL and ADSL2plus Regional POPs

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The open eir ADSL/ADSL2plus Regional POPs are defined as the open eir Bitstream service handover points (within the ADSL/ADSL2plus geographically defined region) to the Wholesale Customer.

Connectivity between the open eir ADSL/ADSL2plus Regional POPs (within the ADSL/ADSL2plus geographically defined region) and the Wholesale Customer is outside of the definition of the Bitstream service.

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### 3 Services Responsibilities

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open eir will have responsibility for the provision, repair, and maintenance of the open eir Bitstream service from the NTU to the open eir handover points (i.e., open eir ADSL/ADSL2plusRegional POPs), excluding installation of the NTU.

The Wholesale Customers are responsible for the installation of the NTU and their services that operate over the open eir Bitstream service, as well as any equipment a Wholesale Customer attaches to the open eir Bitstream service (outside the service termination points).

The Wholesale Customer should ensure that the installation of their DSL service does not disrupt the integrity of the open eir services. If the Wholesale Customer's subscriber is dissatisfied with the quality of the open eir services, during or as a consequence of the installation of the Wholesale Customer's services and the NTU, the Wholesale Customer shall correct the service problems within an agreed reasonable timeframe or restore the installation to its original status.

The Wholesale Customer must prove installation failures out of their network as per the open eir NTU Installation Manual and the Industry Process Manual.

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### 4 Service Management

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#### 4.1 Order Handling

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Refer to the Order Handling chapter of the Industry Process Manual.

#### 4.2 Maintenance

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Refer to the Maintenance and Repair chapter of the Industry Process Manual.

#### 4.3 Billing Interfaces

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Refer to the Billing chapter of the Industry Process Manual.

#### 4.4 Service Levels

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Refer to the open eir Service Level Agreement for the Service Delivery and Service Assurance of the open eir ADSL/ADSL2plus Bitstream Service.

## 5 Authentication

A two stage authentication solution is used for open eir Wholesale’s Bitstream solution.

open eir undertakes 1st level authentication via domain name and 2nd level authentication is performed by the Bitstream Operators. The order of authentication deployed by open eir is as follows:

Username/Password

REALM

CSID

The stages in the end user authentication process can be summarised as follows:

1st Level Authentication: open eir BRAS sends the username to the network of open eir RADIUS servers and they perform 1st level authentication for the Wholesale customer.

2nd Level Authentication: the Bitstream Operator’s HGW is responsible for the Customer authentication. This authentication can be done on username/password combination or using line based authentication (CSID).

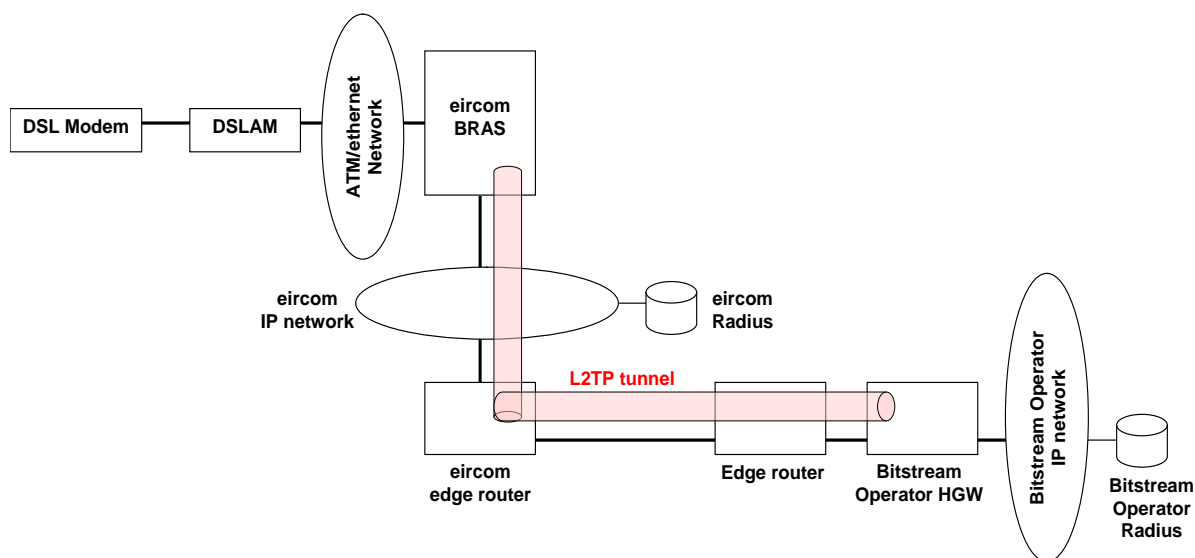


Figure 3: Wholesale Authentication Overview

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## 6 Price

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Prices are published on the open eir website, and a full list of prices may be found on [www.openeir.ie](http://www.openeir.ie) website. The pricing of the eir Bitstream service will be reviewed on an annual basis to reflect any changes in the service or products.

### 6.1 Rental and Connection Fees

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As previously stated Rental and Connection Fees are available in the Bitstream Price List

On the [www.openeir.ie](http://www.openeir.ie) website, the full location is:

[http://www.openeir.ie/Reference\\_Offers/?selectedtab=wbaro#baro](http://www.openeir.ie/Reference_Offers/?selectedtab=wbaro#baro)

All open eir Bitstream Products are subject to Connection Fees and Monthly Rental Fees. Connection fees are charged in arrears. Monthly rental fees are charged in advance.

The Bitstream MB Products are also subject to Usage, this is aggregated across all end users attached to the product for the specific open eir Customer and billed using 95th Percentile Billing. Usage is billed in arrears.

### 6.2 95th Percentile Billing

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- Specific Bitstream MB VLANs are set up by request on the Wholesale Customer's BECS. Realms are associated to these VLANs
- 95th Percentile Billing is a standard way in which bandwidth is billed by ISP's. Samples taken every 5 minutes for a month and the top 5% are discarded.
- Measurements taken on Load-In and Load-Out values and usage is calculated across all BECS circuits per Wholesale Customer. Per Mb charge is raised against the highest value of the aggregate load in/load out (after the top 5% of measurements have been discarded) and billed to the Wholesale Customer at the published rate.
- Enables Wholesale Customer to have short periods where higher than normal bursts in traffic do not count against the amount being charged
- Individual Wholesale Customer's Daily usage and aggregate files will be available on the Industry Hub on a monthly basis.

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## 7 Terms and Conditions

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When purchasing open eir's ADSL/ADSL2plus Bitstream Service, Wholesale Customers may select one of two contract options: a minimum term per Bitstream port or no minimum term but a cease fee per Bitstream port. Both contract options for the Bitstream Service are published on the website at [www.openeir.ie](http://www.openeir.ie)

Contract options for minimum term will be available for each of the three product sets; details are published in the WBARO Service Schedules.

Wholesale Customers must choose to sign one of these contract types only, and all Bitstream ports purchased by the Wholesale Customer will be subject to the same Terms and Conditions.

Wholesale Customers signing Bitstream IP, Bitstream MB and Bitstream VC contracts must either sign up to minimum term type contracts for all or no minimum term contracts for all.

### 7.1 Minimum Term

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open eir implements a six month minimum term period for Bitstream.

Minimum term means that if a cease is placed on an end user's Bitstream product prior to six months being up from the provision of said product monthly rental is charged out to the six months. If six months have passed since the provision of a product on an end user's line no charge is incurred.

Minimum term is only incurred on cease orders. Cease orders include any ceasing of the Bitstream service, including movement to Line-Share.

Minimum term is restarted every-time a new product order is placed, be it provide, upgrade, downgrade, transfer or migration.

Not every open eir Bitstream Customer has signed a Minimum Term Contract, those that have not do not have minimum term implemented on ceasing. They are charged a Cease Fee on ceasing.



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## Appendix 1: Physical Interface at Service Termination Point

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Proposed physical interface options at the service termination point at the subscriber's premises is as follows:

ADSL Bitstream Service will comply with DMT in the Issue 2, Category II, ITU Technical Requirement G992.1 and testing under ETSI specification ETR328. ADSL2plus Bitstream service will comply with G.992.5 Annex-A

open eir network interface standards, with which subscriber modems should comply, are covered in Category II of the June, 1999 ITU Technical Requirement G.992.1 for ADSL and G.992.5 for ADSL2plus ((Note that open eir currently utilises Alcatel ASAM 7300's for ADSL and Alcatel ISAM 7302's for ADSL2plus.

open eir is not responsible for any Wholesale Customer's subscriber's CPE or internal wiring beyond the NTU.

## Appendix 2: Parameters of the open eir NTU interface

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Network Termination Units will be the NTU 2001 with associated ADSL/ADSL2plus splitter. This provides RJ11 and RJ45 sockets. The open eir NTU has been tested according to ETSI TR-101-728 (URL: [www.etsi.org](http://www.etsi.org)). The NTU is subject to changes and Wholesale Customers will be notified of any changes.

Wholesale Customer installation of the dual NTU/splitter must conform to standard open eir policies for installation of an NTU in a subscriber's premises.

## Appendix 3: Profiles Associated with “up to” Products

### Appendix 3.1: Bitstream IP Profiles

Profiles associated with “up to” products from 4 <sup>th</sup> July 2011				
Product	Downstream Port Speed (kb/s)	Upstream Port Speed (kb/s)	Db Values 7	Planning Ratio
open eir Bitstream Sprint IP	24576 RA	1024 RA	0 -> 4.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	20480 RA	1024 RA	5 -> 9.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	17408 RA	1024 RA	10 -> 14.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	15360 RA	1024 RA	15 -> 20.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	12288 RA	1024 RA	21 -> 29.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	10240 RA	832 RA	30 -> 31.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	9216 RA	832 RA	32 -> 33.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
open eir Bitstream Turbo IP Plus	8192 RA	832 RA	34 -> XXX	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	18432 RA	2048 RA	0 -> 4.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	15360 RA	2048 RA	5 -> 9.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	12288 RA	2048 RA	10 -> XXX	12:1outside NGN Exchanges Uncongested within NGN Exchanges

7dB Values are an estimate based on the averaged copper plant cable gauge across Ireland, as such this is an indicative value in comparison with profile only.



Profiles associated with "up to " products from 4th July 2011				
Product	Downstream Port Speed (kb/s)	Upstream Port Speed (kb/s)	Db Values 7	Planning Ratio
open eir Bitstream Arrow IP	12288 RA	1024 RA	0 -> 29.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	10240 RA	832 RA	30 -> 31.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	9216 RA	832 RA	32 -> 33.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
open eir Bitstream Swift IP	8192 RA	832 RA	34 -> XXX	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	12288 RA	1120 RA	0 -> 22.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	8192 RA	1120 RA	23 -> 24.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	8192 RA	800 RA	25 -> 29.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	7616 RA	672 RA	30 -> 31.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	6144 RA	512 RA	32 -> 36.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	5120 RA	512 RA	37 -> 42.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	4096 RA	384 RA	43 -> 49.99	12:1outside NGN Exchanges Uncongested within NGN Exchanges
	3072 RA	384 RA	50 -> XXX	12:1outside NGN Exchanges Uncongested within NGN Exchanges



Profiles associated with "up to " products from 4th July 2011				
Product	Downstream Port Speed (kb/s)	Upstream Port Speed (kb/s)	Db Values 7	Planning Ratio
open eir Bitstream Zoom IP	24576 RA	768 RA	0 -> 4.99	48:1
	20480 RA	768 RA	5 -> 9.99	48:1
	17408 RA	768 RA	10 -> 14.99	48:1
	15360 RA	768 RA	15 -> 20.99	48:1
	12288 RA	672 RA	21 -> 29.99	48:1
	10240 RA	672 RA	30 -> 31.99	48:1
	9216 RA	672 RA	32 -> XXX	48:1
open eir Bitstream Expand IP	3072 RA	384 RA	0 -> 55.99	48:1
	2048 RA	256 RA	56 -> XXX	48:1

7 dB Values are an estimate based on the averaged copper plant cable gauge across Ireland, as such this is an indicative value in comparison with profile only.

### Appendix 3.2: Bitstream MB Profiles



Profiles associated with "up to " products from 4th July 2011				
Product	Downstream Port Speed (kb/s)	Upstream Port Speed (kb/s)	Db Values 8	Planning Ratio
open eir 8Mb Bitstream MB	8192	512	0 -> 29.99	Uncongested
	7168	512	30 -> 31.99	Uncongested
	6144	512	32 -> 36.99	Uncongested
	5120	512	37 -> 42.99	Uncongested
	4096	384	43 -> 49.99	Uncongested
	3072	384	50 -> 55.99	Uncongested
	2048	256	56 -> 79.99	Uncongested
	1024	128	80 -> XXX	Uncongested
open eir 24Mb Bitstream MB	24576	768	0 -> 4.99	Uncongested
	20480	768	5 -> 9.99	Uncongested
	17408	768	10 -> 14.99	Uncongested
	15360	768	15 -> 20.99	Uncongested
	12288	672	21 -> 29.99	Uncongested
	10240	672	30 -> 31.99	Uncongested
	9216	672	32 -> XXX	Uncongested

<sup>8</sup>dB Values are an estimate based on the averaged copper plant cable gauge across Ireland, as such this is an indicative value in comparison with profile only.



Profiles associated with “up to “ products from July 2013				
Product	Downstream Port Speed (kb/s)	Upstream Port Speed (kb/s)	Db Values 9	Planning Ratio
Standalone eir 8Mb Bitstream MB(**)	8192	512	0 -> 29.99	Uncongested
	7168	512	30 -> 31.99	Uncongested
	6144	512	32 -> 36.99	Uncongested
	5120	512	37 -> 42.99	Uncongested
	4096	384	43 -> 49.99	Uncongested
	3072	384	50 -> 55.99	Uncongested
	2048	256	56 -> 79.99	Uncongested
	1024	128	80 -> XXX	Uncongested
Standalone eir 24Mb Bitstream MB	24576	768	0 -> 4.99	Uncongested
	20480	768	5 -> 9.99	Uncongested
	17408	768	10 -> 14.99	Uncongested
	15360	768	15 -> 20.99	Uncongested
	12288	672	21 -> 29.99	Uncongested
	10240	672	30 -> 31.99	Uncongested
	9216	672	32 -> XXX	Uncongested

*<sup>9</sup>dB Values are an estimate based on the averaged copper plant cable gauge across Ireland, as such this is an indicative value in comparison with profile only*

## Appendix 4: Previous Product

This section describes the product that has changed in this document; all other products remain unchanged from previous.

Products Available up to 3 <sup>rd</sup> July 2011					
Product	Downstream Port Speed (kb/s)	Upstream Port Speed (kb/s)	Interface	Class of Service	Planning Ration
eir Bitstream Swift IP(**)	“up to” 8192 RA	“up to” 1120 RA	IP	UBR	12:1 outside NGN Exchanges Uncongested within NGN Exchanges

Products associated with “up to “ products until 3 <sup>rd</sup> July 2011				
Product	Downstream Port Speed (kb/s)	Upstream Port Speed (kb/s)	Db Values 10	Planning Ratio
eir Bitstream Swift IP	8192 RA	1120 RA	0 -> 22.99	12:1 outside NGN Exchanges Uncongested within NGN Exchanges
	8192 RA	1124 RA	23 -> 24.99	12:1 outside NGN Exchanges Uncongested within NGN Exchanges
	8192 RA	800 RA	25 -> 29.99	12:1 outside NGN Exchanges Uncongested within NGN Exchanges
	7616 RA	672 RA	30 -> 31.99	12:1 outside NGN Exchanges Uncongested within NGN Exchanges
	6144 RA	512 RA	32 -> 36.99	12:1 outside NGN Exchanges Uncongested within NGN Exchanges

<sup>10</sup>dB Values are an estimate based on the averaged copper plant cable gauge across Ireland, as such this is an indicative value in comparison with profile only.

## Appendix 5: Glossary

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ADSL	Asymmetric Digital Subscriber Line
ADSL2plus	Asymmetric Digital Subscriber Line 2plus
AP	Access Provider - the provider of the PSTN service
ATM	Asynchronous Transfer Mode
BCS	Bitstream Connection Service
BECS	Bitstream Ethernet Connection Service
BGP	Border Gateway Protocol
BMB	Bitstream Managed Backhaul aka Bitstream MB
BRAS	Broadband Remote Access Server
CoS	Class of Service
CPE	Customer Premises Equipment
dB	Decibel
DP	Distribution Point/Distribution Pole
DSLAM	Digital Subscriber Line Access Multiplexer
HGW	Home Gateway
IP	Internet Protocol
IPoE	Internet Protocol over Ethernet
MSAN	Multi-Service Access Node
MTU	Maximum Transmission Unit
NGN	Next Generation Network
NTU/splitter	Network Termination Unit. DSL equipment at the end user's Premises
POP	Point of Presence
PPP	Point to Point Protocol
PPPoE	Point too Point over Ethernet
QoS	Quality of Service
RADIUS	Remote Authentication Dial In User Service
S-VLAN	Service-Virtual Local Access Network
UBR	Unspecified Bit Rate
UG	Unified Gateway
VC	A Virtual Circuit (VC) is a logical circuit within the VP that is typically dedicated to a single user.
VLAN	Virtual Local Access Network
VLL	Virtual Leased Line
WCCC/ WCSC	open eir Customer Service Centre
WTM	open eir Trouble Management



## Appendix 6: Document Locations

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All documents referenced in this product description are located on [www.openeir.ie](http://www.openeir.ie) in the following places:

<http://www.openeir.ie/Reference-Offers/BARO/>

<http://www.openeir.ie/Products/Access/Bitstream/Bitstream-IP/?pageid=330&tab=0>

<http://www.openeir.ie/Products/Access/Bitstream/NGB.aspx?pageid=330&tab=0>

<http://www.openeir.ie/Products/Access/Bitstream/Bitstream-VC/?pageid=330&tab=0>

<http://www.openeir.ie/Customer-Service/Unified-Gateway/>

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## Version Control History

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Version	Status	Update	Effective Date
33			6/10/2012
34	Published	Addition of standalone Bitstream Managed Backhaul	TBD
34.1		The entire Bitstream Service Product Description has been rewritten and reformatted, in line with open eir Business Unit Reform.	
34.1		Rebranded	October 2015
V35.0	Final	This document is based on V34.1 Implementation of Standardised Change Control.	13/06/2017