Product description

Co-Mingling

FOR REFERENCE ONLY.

THESE PRODUCTS ARE NO LONGER AVAILABLE FOR NEW SUPPLY.

This product sets offers you a Point of Presence (PoP) for compliant equipment at a Main Distribution Frame (MDF) site, based on a straightforward, standardised design. MDF sites are typically located within what we refer to as unpartitioned Multi User Areas (MUAs) – i.e. an area that houses other customers' equipment.

Revisions

S/N	Version	Author	Date	Description
1	V 1.0	KnowHow documentation team	27 May 2010	Openreach Knowhow update
	1.1	RM	02 August 2010	Edit
	1.2	RM	02 August 2010	Product line amends
	1.3	Martin Edwards	20 April 2011	Changes to Space Only product – sections 2.7 and 3.9
	1.4	Martin Edwards	12 th September 2011	Revisions to show clarification of customer usable space on CSR and MCU products following adoption of higher specification batteries.
	1.5	Martin Edwards	6th October 2016	Issue post notification

This document is due for review on 06/10/2017

Introduction and handy reading tip for our LLU and Access Locate customers

This is an Openreach ancillary document.

It contains important information about our LLU and Access Locate infrastructure products which you need to understand. Its contents, except those sections highlighted in grey, which are for information purposes only, form part of our LLU and Access Locate contract with you.

As we introduce or withdraw product features or otherwise develop our services, we will make changes to this document in line with the change process for ancillary documents in our LLU and Access Locate contracts which are published on the Openreach portal at:

https://www.openreach.co.uk/orpg/home/products/llu/contracts/contracts.do

https://www.openreach.co.uk/orpg/home/products/llu/contracts/accesslocate.do

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1 Product overview

Here are the legacy products:

- Basic Single Rack (BSR)
- Low Capacity Unit (LCU)
- Medium Capacity Unit Max (MCU Max)
- Medium Capacity Unit 1 (MCU1)
- Medium Capacity Unit 2 (MCU2)
- New Britain Umbilical Services Structure 3 (B-BUSS3)
 New Britain Umbilical Services Structure 7 (B-BUSS3)
- New Britain Umbilical Services Structure 7 (B-BUSS7)
 Standalone Handover Distribution Frame (HDF9)
- Standalone Handover Distribution Frame (HDF9)
 Standalone Handover Distribution Frame (HDF18)
- Standalone Handover Distribution Frame
 Complete Single Rack (CSR)
- Complete Single Rack
 Space Only
- Space Only.

On order confirmation, we'll provide you with:

- An estimated delivery time
- An estimated tie cable length
- Confirmation of your MUA address
- Confirmation of your room licence fee
- An indication of your access route
- Information about floor loading and any other relevant restrictions.

Please note that:

- We offer these products subject to available floor space and power
- Site surveys may be required (e.g. for AC and Essential Service, generator backed, (ESS) power)
- We'll do our utmost to maintain an operating environment within the constraints and conditions of ETSI 300.019. In the unlikely event that we can't do that, we'll advise you accordingly, at which point you can accept or decline the build offer

Internal Tie Cables – In order to provide MPF / SMPF services you will require Internal Tie Cables. Information on Internal Tie Cables is available in the Internal Tie Cable Product Description which can be found via the following link:

https://www.openreach.co.uk/orpg/home/products/llu/internaltiecable/internaltiecable.do

You will also require a backhaul service. If you require Openreach provided backhaul or information on Cablelink, this can be found on the Ethernet Services area of the Openreach portal via the following link: https://www.openreach.co.uk/orpg/home/products/ethernetservices/ethernetservices.do

2 Specifications

2.1 BASIC SINGLE RACK (BSR) specifications

- BSR 600 RSU: 600mmx600mm.
- BSR 600 physical footprint: 900mm(w)x600mm(d)x2200mm(h).
- BSR 900 RSU: 900mmx900mm
- BSR 900 physical footprint: 1200mm(w)x900mm(d)x2200mm(h).
- AC power supply up to 3kW, single phase, rated at 20A.
- AC isolator switch.
- Common earth point connection.
- Two AC small power socket outlets.
- Tie cable management (basket) capacity of 10x100 pair internal tie cables.
- Submeter.
- Optional ESS power supply.
- Chargeable area: 6sq.m, based on 3kW at 500w/sq.m.



Chargeable areas

The following chargeable area tables are based on 500W/sq.m for heat dissipation:

BSR 600

AC power (kW)	Chargeable area (sq.m)
0.1	207
0.2	207
0.3	207
0.4	207
0.5	207
0.6	207
0.7	207
0.8	207
0.9	207
1.0	207
1.1	220
1.2	240
1.3	260
1.4	280
1.5	300
1.6	320
1.7	340
1.8	360
1.9	380
2.0	400
2.1	420
2.2	440
2.3	460
2.4	480
2.5	500
2.6	520
2.7	540
2.8	560
2.9	580
3.0	600

BSR 900

AC power (kW)	Chargeable area (sq.m)
0.1	416
0.2	416
0.3	416
0.4	416
0.5	416
0.6	416
0.7	416
0.8	416

0.9	416
1.0	416
1.1	416
1.2	416
1.3	416
1.4	416
1.5	416
1.6	416
1.7	416
1.8	416
1.9	416
2.0	416
2.1	420
2.2	440
2.3	460
2.4	480
2.5	500
2.6	520
2.7	540
2.8	560
2.9	580
3.0	600

2.2 LOW CAPACITY UNIT (LCU) specifications

- Floor space: 750mmx600mm.
- Cabinet space: 600mm(w)x600mm(d)x1200mm(h).
- AC only option up to 0.87kW.
- DC power of 1kW (1.1kW supply) as an option.
- Two surge-protected sockets.
- Accessible enclosure for 300 tie pairs.
- Chargeable area: 1.73sq.m or 2.2sq.m with DC option (500W/sq.m).



2.3 MEDIUM CAPACITY UNIT Max (MCU Max) specifications

Installing the 900mmx900mm RSUs (i.e. for MCU1Max 900 or MCU2Max 900) may result in reduced width gangways for access to the front and back of the units. Any cabinets installed with these products should have double opening doors or bi-folding doors for access.

Also, again due to reduced width gangways, you may need to build 900mm racks/cabinets on site. They should have flush front layouts to ensure a clear access route (i.e. the front of the RSUs in line with the suite gangway):

MCU1 Max with one 600mmx600mm RSU (MCU1 Max 600)

- DC power options: 4.5kW (4.95kW AC), 6kW (6.6kW AC).
- Modular battery housing for SBSC11 cells. Option for second battery string, which would reduce HDF capacity to 1,800 tie pairs.
- Submeter as standard.
- N+1 rectification as standard.
- 750 VA inverter as standard, with option of 1500 VA and N+1.
- Available as new build or upgrade from MCU1 600.

Design



MCU2 Max with two 600mmx600mm RSUs (MCU2 Max 600)

- DC power options: 4.5kW (4.95kW AC), 6kW (6.6kW AC).
- Modular battery housing for SBSC11 cells. Option for second battery string, which would reduce HDF capacity to 1,800 tie pairs.
- Submeter as standard.
- N+1 rectification as standard.
- 750 VA inverter as standard, with option of 1500 VA and N+1.
- Available as new build or upgrade from MCU2 600.



MCU1 Max with one 900mmx900mm RSU (MCU1 Max 900)

- DC power options: 4.5kW (4.95kW AC), 6kW (6.6kW AC).
- Modular battery housing for SBSC11 cells. Option for second battery string, which would reduce HDF capacity to 1800 tie pairs.
- Submeter as standard.
- N+1 rectification as standard.
- 750 VA inverter as standard, with option of 1500 VA and N+1.
- Available as a new build or as upgrade from MCU1 900.

Design



MCU2 Max with two 900mmx900mm RSUs (MCU2 Max 900)

- DC power options: 4.5kW (4.95kW AC), 6kW (6.6kW AC).
- Modular battery housing for SBSC11 cells. Option for second battery string, which would reduce HDF capacity to 1800 tie pairs.
- Submeter as standard.
- N+1 rectification as standard.
- 750 VA inverter as standard, with option of 1500 VA and N+1.
- Available as a new build or as upgrade from MCU2 900.



Acceptable layouts



2.4 MCU1 specifications

- Space for the HDF, the AC power distribution board and your own DSLAM.
- Rack footprint: 1570mm(w)x600mm(d), with an additional usable space of 2200mm(h)x600mm(w)x600mm(d).
- Access to both sides of the rack unit.
- Chargeable area: 3.6sq.m with AC power only; or 3.3sq.m with DC power option).



Please note that:

- Gangways need to be approximately 1000mm to 1200mm wide to allow for safe equipment handling, cabinet door opening and heat dissipation
- Perimeter gangways must meet Openreach standards (i.e. not less than 1200mm clear width where required for access from the entrance). Where not required for entry, exit or equipment handling (including cooling units), perimeter gangways may be reduced to 900mm wide
- The position of each MCU1 will be marked on the floor and indicated on the floor plan.
- Fire exit access is compliant with relevant building and fire regulations, as interpreted by Openreach, in line with the local Fire Service rules and guidelines
- The maximum floor loading of your equipment must not exceed the level notified by our design team and on the room drawing(s). This is typically between 7.5 kN/sq.m and 9kN/m2. There may be occasions were a lower restriction applies. If loading needs to be less than 6kN/sq.m, we'll inform you of the fact
- Under distributive loading (and assuming distributive area includes 50% of gangways) problems are unlikely, provided the total weight of kit to be deployed is less than 430 kg/rack unit.

Acceptable layouts





2.5 MCU2 specifications

- Provides space for the HDF, the AC power distribution board and your own DSLAM.
- Rack footprint: 2180mm (w)x600mm(d), with an additional usable space of
- 2200mm(h)x1200mm(w)x600mm(d).
- Access to both sides of the rack unit.
- Chargeable area: 5sq.m with AC power only, or 6.6sq.m with DC power option.



Design

Please note that:

- Gangways need to be approximately 1000mm to 1200mm wide to allow for safe equipment handling, cabinet door opening and heat dissipation
- Perimeter gangways must meet Openreach standards (i.e. not less than 1200mm clear width where required for access from the entrance). Where not required for entry, exit or equipment handling (including cooling units), perimeter gangways may be reduced to 900mm wide
- The position of each MCU2 will be marked on the floor and indicated on the floor plan.
- Fire exit access is compliant with relevant building and fire regulations, as interpreted by Openreach, in line with the local Fire Service rules and guidelines

- The maximum floor loading of your equipment must not exceed the level notified by our design team and on the room drawing(s). This is typically between 7.5 kN/sq.m and 9kN/m2. There may be occasions were a lower restriction applies. If loading needs to be less than 6kN/sq.m, we'll inform you of the fact
- Under distributive loading (and assuming distributive area includes 50% of gangways) problems are unlikely, provided the total weight of kit to be deployed is less than 430 kg/rack unit.



Acceptable layouts

2.6 B-BUSS3 and B-BUSS7 specifications

B-BUSS3:

- Floor space: 3130mmx600mm (3730mmx600mm with DC power option)
- Rack space:1800mm(w)x600mm(d)x2200mm(h)
- AC power only option: Up to 4.4kW
- Optional DC power: 4kW (4.4kW supply)
- Two surge-protected sockets
- Accessible enclosure for 4,800 tie pairs.
- Chargeable area with DC power option (500W/sq.m): 8.8sq.m
- Chargeable area with maximum AC power capacity: 8.8sq.m

B-BUSS7:

- Floor space: 6140mmx600mm (6640mmx600mm with DC power option)
- Rack space:4200mm(w)x600mm(d)x2200mm(h)
- AC power only option: Up to 8.8kW
- Optional DC power: 8kW (8.8kW supply)
- Two surge-protected sockets

- Accessible enclosure for 4,800 tie pairs, with a capacity for an additional 4,800 pairs.
- Chargeable area with DC power option (500W/sq.m): 17.6sq.m
- Chargeable area with maximum AC power capacity: 17.6sq.m

Design



2.7 Standalone HDF9 and Standalone HDF18 specifications

Front view of Standalone HDF9 and Standalone HDF18:



Rear view of Standalone HDF18:



Standalone HDF9S product diagram:



2.8 CSR specifications

- Footprint: 600mm(w)x600mm(d)x2200mm(h)
- AC power supply: 1.65kW or 3.3kW, single phase, rated at 32A
- DC power supply to match 1.5kW or 3kW, respectively.
- AC isolator switch.
- Common earth point connection.
- Two AC small power sockets.
- DC power system with N+1 rectification and A/B distribution.
- High reliability AC/DC inverter.
- HDF capacity of 10x100 pair internal tie cables.
- 25U space for DSLAM/MSAN installation.
- 2U space for backhaul installation.
- Submeter.
- Optional ESS.
- Optional front and rear security doors with keypad lock.
- Chargeable area: 3.3 sq.m, based on 1.65kW at 500w/sq.m.
- Chargeable area: 6.6 sq.m, based on 3.3kW at 500w/sq.m.



Complete Single Rack product schematic

CPs inform Openreach of their required AC or AC/DC power levels during the APO submission stage. Based on the CP requirements Openreach dimension the PoP to the initial and maximum build power level that is safe and efficient for the power threshold. CPs must not exceed the initial and maximum power level of the delivered PoP. If the CP exceeds the maximum power level build capacity it puts at risk:

- the CP's PoP which is breaking the maximum supply
- all other AC power users of the site including other CPs and BT's core network

through overloading the AC mains intake and fusing arrangement to the affected building.

Failure to adhere to the initial and maximum build power level means that the PoP does not comply with UK wiring regulations (BS7671) and therefore also becomes a potential risk with respect to the Electricity At Work Regulations (EAWR).

Openreach will inform the CP via email when the maximum build power level is exceeded, or when the PoP will exceed within in the near future, Openreach states that the CP is required to place an order to upgrade the PoP to match the current maximum build power level they are reaching. Alternatively the CP could rearrange, or remove equipment to reduce the power level to be within the required maximum build power level. Openreach will charge the CP

- <u>from</u> the date that Openreach informs the CP of it exceeding the maximum build power level until the PoP upgrade is completed, or where the CP rearranges its equipment, <u>until</u> the CP informs Openreach it has done so, and a site visit has checked its compliance:
- for charges marked with an asterisk the charges applied will be the difference between the charges applied at the time of the notification and the relevant charges that apply to the maximum build power level
- One off charges
 - 2 site visit charges
 - Power capacity survey charge
 - Co-mingling set-up fee *
 - Cooling charge *
- Rental charges:
 - ESS, or non-ESS *
 - Service and security charge *
 - Space licence fee *

The charges will be as set out in the Openreach price list at the time the maximum build power level is exceeded.

3 Billing

- We'll bill you quarterly, via our automated billing system, as described in the Revised Access Network Facilities Agreement and the Openreach Price List.
- One off charges will be billed first quarterly bill period following handover
- All rental charges are payable quarterly in advance other than submetered power usage which is billed quarterly in arrears
- You can request monthly billing if you prefer.

3.1 Charging structure

The unit based approach with Co-Mingling limits costs, as there's no need to provide bespoke design solutions. The pricing structure includes the following up front capital elements:

- Environmental conditioning charge: Per kW, to cover the provisioning of ventilation and maintenance, provided on the basis of the maximum power capacity of either AC only or DC options, whichever you order
- Co-Mingling set up charge: Per square metre per product charge: Covers product provisioning
- HDF connection charge: Covers the supply and installation of the HDF
- Tie cable charge: Per internal tie cable, to cover supply and installation
- Submetering charge: Covers cost of provision of a submeter, where requested
- Handover charge: Covers the cost of an Openreach representative attending a handover meeting or of a virtual handover
- Site access charge: Covers the provision of keys, cards, padlocks and programming of an electronic access security system.

The pricing structure includes the following elements:

- Space licence fee: Standard rate reflecting the commercial property value on a per square metre per year basis, using the billable area occupied by the product
- Service charge: Standard per square metre per year rate, levied on a per square metre per year basis, using the billable area occupied by the product

- Internal tie cable rental: Standard cost, levied on a per internal tie cable per year basis.
- MDF licence fee: Standard cost levied on a per internal tie cable per year basis
- Power consumption charges: Unless you've ordered sub-metering has been ordered, we'll charge you for power on a per kWh basis of the maximum power capacity provided, depending on whether you opt for AC only or AC+DC
- ESS power supply charges: Per kW, to cover costs this supply, where requested
- Final distribution charge: Covers the cost of providing power distribution cabling from the floor to your facility in the MUA.
- Security partitioning rental: Standard annual rental, payable per site to cover the cost of securing critical network equipment.

4 References

For information about LLU products, please visit <u>www.openreach.co.uk/llu</u>.

5 Additional information

5.1 Building access and physical security

- Access to the site must comply with security rules and guidelines and any advised locally at MDF site
- Escorted access will be applicable as and when required at certain MDF sites

5.2 Ventilation and cooling

We're responsible for maintaining the environment (including cooling units) within the MUA to ETSI300.019 Class 3.1, based on the combined heat loads of all customers within the area.

5.3 Smoke/fire detection

All of our buildings provide fire, flood and gas protection as standard. Each MDF Site will have clear instructions on fire protection equipment available.

5.4 Labelling and information

- We'll fix a sign or durable label on the LLU Product, to show its identity reference.
- You need to clearly display a 24-hour telephone number.
- We'll provide relevant information pertinent to all customers within the shared equipment area.

5.5 Waste packaging and materials

You must not leave them in the exchange. You must remove it immediately after unpacking.

5.6 Waste electrical and electronic equipment

You are responsible for disposing of your own waste. You must not use Openreach waste bins for this purpose and remove and dispose of all waste from out site according to the relevant EU directives.

5.7 Communications

We don't provide PSTN lines as part of the standard Co-Mingling product set. **5.8 Welfare facilities**

Where available, you and your sub-contractors will be able to use the same toilet and washroom facilities that our own contractors and sub-contractors use.

5.9 Health and Safety

We'll provide relevant information for the site, including:

- Details of fire procedures
- Specific hazards of the building

Please note that we don't provide first aid facilities for your staff and contractors. This is your responsibility and theirs.

5.10 Service requirements

Before any installation work can begin, you must provide:

- An electrical certificate of conformity for the components of your installed rack*.
- Electrical test certification for your installed rack*.

*Openreach can carry out this certification on your equipment as a bolt on service.

- Please note that:
- It's your responsibility to ensure the HDF is available before ordering connections to internal tie cables
- Any HDF you provide must use the same 3M Quante termination modules used in the standard Openreach provided HDF
- If you require bare ended internal tie cables, you must not connect them directly to your equipment. For further information, please refer to the product description for internal tie cables. You'll find it in the Plan and Build Information section at www.internal.openreach.co.uk/internaltiecablepd