



## Customer Interface Publication: CIP024

### KCOM Group PLC DataLine Access Service Description and Technical Characteristics

**Issue: Version 1.2**

**April 2016**

The information in this document is provided in accordance with the requirements of the Radio Equipment and Telecommunications Terminal Equipment Regulations 2000 (Statutory Instrument 2000 No. 730) to publish (in accordance with the EC Radio and Telecommunications Terminal Equipment Directive 99/05/EC) technical characteristics of interfaces to the public fixed telephone network.

Users of this document should not rely solely on the information in this document, but should carry out their own tests to satisfy themselves that terminal equipment will work with the networks of KCOM Group PLC.

This document does not form a part of any contract with KCOM Group PLC customers or suppliers. KCOM Group PLC shall have no liability in contract tort or otherwise for any loss or damage, howsoever arising from use of, or reliance upon, the information in this document by any person.

Publication of this Customer Interface Information Document does not give or imply any licence to any intellectual property rights belonging to KCOM Group PLC or others

© KCOM Group PLC  
37 Carr Lane Kingston Upon Hull HU1 3RE

## Contents

1. SCOPE .....	3
2. OUTLINE SERVICE DESCRIPTION .....	3
3. SERVICE DESCRIPTION .....	4
<i>Customer Interface</i> .....	4
<i>Virtual Paths</i> .....	4
<i>End User Access Interface</i> .....	4
4. SERVICE DATA RATES .....	5
5. ATM LAYER ASPECTS .....	5
6. CUSTOMER INTERFACE DESCRIPTION .....	5
<i>ATM VPI VCI</i> .....	6
<i>Connectivity Checks</i> .....	6
7. END USER INTERFACE .....	6
<i>Integral Splitter Presentation</i> .....	6
<i>Wires Only</i> .....	6
<i>ATM Aspects</i> .....	7
<i>Traffic Shaping</i> .....	7
8. AVAILABILITY .....	7
9. INTERCONNECTION ARRANGEMENTS .....	7
10. SAFETY & EMC INFORMATION .....	7
<i>Safety</i> .....	7
<i>EMC</i> .....	7
11. TERMINAL EQUIPMENT SPECIFICATIONS .....	8
12. GLOSSARY .....	9
13. REFERENCES.....	10
14. HISTORY .....	11

## 1. Scope

This document sets out the service description and technical characteristics of the KCOM Group PLC Dataline Access Service operated by Consumer Business and Internet Service Division of KCOM Group PLC.

Changes to the technical architecture and network interfaces that affect the correct working of the service will be published by KCOM Group PLC in documents made available from the address below. If the changes impact on this document then it will be updated. Enquiries relating to the technical content of this document and the availability of other publications should be directed to:

KCOM Group PLC Regulatory Affairs  
37 Carr Lane,  
Kingston Upon Hull. HU1 3RE

Telephone: 01482 602100  
E-mail: [regulatory@kcom.com](mailto:regulatory@kcom.com)

## 2. Outline Service Description

KCOM Group PLC DataLine is an ATM based data network that enables a customer to offer broadband service access for multiple end users using their own Layer 3 transport services. KCOM only provides the delivery platform, provisioning, installation, billing and fault management.

The service is only available over KCOM Group PLC provided direct exchange lines on a limited geographical basis. The final connection to the end user (EU) is via ADSL which operates in the frequency spectrum above the standard PSTN telephony service. The ADSL element of the service may be subject to bit-rate and distance limitations dependent on the location of the EU.

### 3. Service Description

The outline service is shown in the following diagram ('Kingston refers to KCOM):

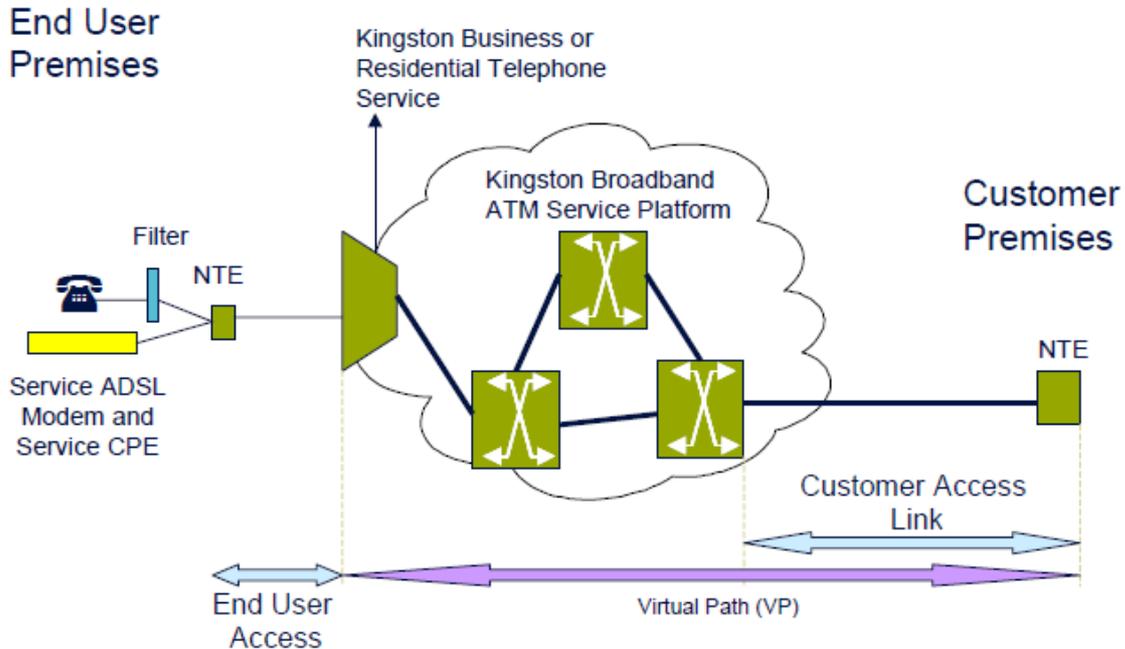


Figure 1. System Outline

#### Customer Interface

The customer interface is 155Mb/s (ATM UNI).

An access connection will be via an ATM access port provided either as an in-building interconnection or at an in-span handover point (subject to availability).

Connection to the interface is the responsibility of the customer. See section 5 for further details.

#### Virtual Paths

The following ATM traffic classes will be available for each VP:

- VBR nrt
- VBR rt

#### End User Access Interface

The end user access interface conforms with ITU-T G.992.1[1] and can be provided as wires only or fitted with an integral splitter. Connection to the end user access interface is the responsibility of the Customer. See section 6 for further details.

## 4. Service Data Rates

The service provides the following maximum data rates inclusive of ATM overheads:

DataLine options	End User upstream	End User downstream data
512 kbs	288	576 kbs
1024 kbs	288	1152 kbs

Other data rates may become available in the future or be available by negotiation.

## 5. ATM Layer Aspects

The customer and end user interfaces conform to the ATM UNI interface version 3.1 [2] as modified by the UK NICC Technical Recommendation Doc. No. 01/048 "UNI based Upon Permanent ATM Connections"[3].

### ATM Layer Management

- The following ATM Layer Management should be noted:
- End to end F5 OAM cells are carried transparently
- Segment F5 OAM cell flows may be modified or discarded within the network
- End to end and segment F4 OAM cells are not carried transparently (at least one VC cross connect element present).
- end to end VP-AIS will be inserted by the network under certain fault conditions
- The DSLAMs may not insert VP-RDI in the event of a failure detection
- The DSLAMs will not insert end to end AIS (VC-AIS) under DSL fault conditions

### Cell Header Functions

The following Cell Header Functions are to be noted:

- The ATM UNI is designed for the user sending cells with cell loss priority CLP=0. If the SP or end user chooses to send cells with CLP=1 then performance objectives will not be met and the cell will be discarded. See UK NICC Technical Recommendation Doc. No. 01/048 [3 ] section 3.3.2.
- The Payload Type (PT) field will be coded in accordance with I.361. [4]
- Explicit Forward Congestion Identifier (EFCI) setting may not be supported and the network may not be transparent to cells with the PTI values set to congestion

## 6. Customer Interface Description

The customer interface operates at a data rate of 155.520Mb/s (SDH) and complies with ITU-T G.707. It is a single-mode fibre connection complying with ITU-T G.957 (1310 nm short haul). The frame structure is in accordance with G.707 . A 10dB attenuator is fitted on the NTE's transmitter to prevent CPE overloading. The optical presentation is a class 1 laser product as defined in the laser safety product standards BS EN 60825-1/2. The optical fibre complies with ITU-T G.652.

The ATM UNI complies with ITU-T I.432.2. The optical connector provided on the Customer Access Link NTE is FC type optical connector conforming with BS EN 186110:1994 [5] and is Physical Contact polished (PC). It provides a single-mode fibre connection complying with ITU-T G.957 [6] (1310 nm short haul). See further detail below. A 10dB attenuator may require to be fitted on the NTE's transmitter to prevent CPE overloading.

The Head Error Check (HEC) field is in accordance with ITU-T I.432.1 [13].

The scrambling and de-scrambling of the cell payload is in accordance with ITU-T I.432.1.

The above is an in-building interconnect. In-span interconnects can be offered subject to the availability of suitable handover points within the KCOM network. See the NICC PNO-IG Recommendations for SDH interconnect between UK Public Electronic Service Providers.

#### ATM VPI VCI

VPI and VCI values will be allocated as appropriate at the time of service implementation.

#### Connectivity Checks

Connectivity checks will be performed prior to service handover to the customer. In the case of an in-building interconnection ATM OAM loop-backs will be checked. This will require the customer's equipment to implement OAM to enable F5 end-to-end loop-back cells to be correctly handled.

For in-span connection KCOM and the customer shall have the right to establish the correct inter-working of the other party's ATM switch.

## 7. End User Interface

#### Integral Splitter Presentation

The ADSL interface is presented via an RJ 11 socket with the following pin connections:

Pin Number	Signal
1	Not used
2	Not used
3	ADSL
4	ADSL
5	Not used
6	Not used

The RJ 11 socket will be provided as part of a replacement telephone line box master socket which will include the standard telephone socket, ADSL RJ 11 socket and integral splitter circuit which separates the ADSL signals from the analogue PSTN telephony signals. KCOM Group PLC Interface Publication CIP021, Technical Characteristic of the ADSL Interface, describes the electrical characteristics of the EU Interface. Connection to the end user access interface is the responsibility of the customer.

#### Wires Only

A "wires only" ADSL presentation can be provided where the G.992.1 based ADSL is presented over the pins 2 and 5 of the standard exchange line NTE. Microfilters must be utilized by the End User in order to access the ADSL and prevent unwanted interference between the telephony and ADSL services. The filter shall comply with or exceed the parameters specified in KCOM Group PLC Interface Publication CIP021.

#### ATM Aspects

A single ATM VCC is provided between the customer and the end user using VPI = 1 and VCI =50.

#### Traffic Shaping

Traffic shaping is applied to downstream traffic and the end user modem must shape the upstream traffic to ensure effective service operation. Upstream shaping up to 288kbit/s is required.

## 8. Availability

The service was initially available in the area covered by the KC PTO licence granted in 1987<sup>1</sup>. All ADSL delivery is subject to the caveat over distance related restrictions of service as mentioned above.

## 9. Interconnection Arrangements

Interconnect with other networks is not part of this service.

## 10. Safety & EMC Information

#### Safety

The Customer Interface optical presentation is a class 1 laser product as defined in the laser safety product standards BS EN 60825-1/2 [17].

#### EMC

The network equipment and network terminating equipment related to the provision of the interface comply with the current EMC regulations.

Whilst predominantly intended to be installed in commercial and light industrial environments, this does not preclude the NTEs being installed in other environments e.g. industrial.

---

<sup>1</sup> Licences granted by the Secretary of State for Trade and Industry to Kingston upon Hull City Council and KCOM Group PLC (formerly Kingston Communications (HULL) PLC) under section 7 of the Telecommunications Act 1984, granted on 30<sup>th</sup> November 1987

## 11. Terminal Equipment Specifications

The minimum recommended terminal equipment EMC specifications are listed in the Official Journal of the European Communities for use under the Electromagnetic Compatibility Directive (89/336). The lists are updated regularly and the terminal manufacturer is recommended to comply with the listed standards applicable to their equipment and the target electromagnetic environment.

The minimum recommended terminal equipment electrical safety specifications are listed in the Official Journal of the European Communities for use under the Low Voltage Directive (73/23/EEC). The lists are updated regularly and the terminal manufacturer is recommended to comply with the listed standards applicable to their equipment.

## 12. Glossary

<b>ADSL</b>	Asymmetric Digital Subscriber Line
<b>AIS</b>	Alarm Indication Signal
<b>ATM</b>	Asynchronous Transfer Mode
<b>ECSP</b>	Electronic Communications Service ProviderS
<b>EU</b>	End User
<b>ITU-T</b>	International Telecommunications Union – Telecom Standardisation
<b>KCH</b>	KCOM Group PLC
<b>NTE</b>	Network Terminating Equipment
<b>NTP</b>	Network Termination Point
<b>OAM</b>	Operations and Maintenance
<b>POTS</b>	Plain Old Telephone Service
<b>PSTN</b>	Public Switched Telephone Network
<b>(RDI</b>	Remote Defect Indication
<b>RJ11</b>	Registered Jack Type 11
<b>SP</b>	Service Provider
<b>STM</b>	Synchronous Transmission Mode
<b>UNI</b>	ATM User Network interface
<b>VBR</b>	Variable Bit Rate
<b>VBR rt</b>	VBR real time
<b>VBR nrt</b>	VBR non-real time
<b>VC</b>	Virtual Channel
<b>VCC</b>	Virtual Channel Connection
<b>VCI</b>	ATM Virtual Channel Identifier
<b>VP</b>	Virtual Path
<b>VPI</b>	(ATM) Virtual Path Identifier

### 13. References

Reference	Standard/ Document	Title	Date
[1]	ITU-T G.992.1	Asymmetric Digital Subscriber Line Transceivers	1999
[2]	ATM Forum UNI Version 3.1	ATM Forum User-Network Interface Specification Version 3.1	1994
[3]	NICC Technical Recommendation Doc. No. 01/048	UNI based Upon Permanent ATM Connections	
[4]	ITU-T I.361	B-ISDN ATM Layer Specification	1995
[5]	BS EN 186110	Sectional Specification. Connector sets for optical fibre and cables Type FC	1994
[6]	ITU-T G.957	Optical interfaces for equipment and systems relating to the synchronous digital hierarchy	1995
[7]	KCH CIP001	Technical characteristics of the Single Analogue Line	2004
[8]	KCH CIP021	Technical Characteristics of the ADSL Interface	2004
[9]	ITU-T G.992.1	Asymmetric Digital Subscriber Line (ADSL) transceivers	1999
[10]	ITU-T G.707	Network Node interface for the Synchronous Digital	1996
[11]	ITU-T I.432.2	B-ISDN user network interface Physical layer specification for	1996
[12]	ITU-T G.811	Timing requirements at the outputs of primary reference clocks	1988
[13]	ITU-T I.432.1	B-ISDN user network interface – physical layer specification –	1996
[14]	NICC	Recommendations for SDH interconnect between UK Licensed	
[15]	ITU-T G.652	Characteristics of a single –mode optical fibre	1993
[16]	ITU-T G.994.1	Handshake Procedures for digital subscriber line (DSL) transceivers	2001
[17]	BS EN 60825- 1/2.	Safety of Laser Products Part 1 Equipment classification, Part 2	1994/ 1995

The above documents [1],[4],[5],[6],[9],[10],[11],[12],[13],[15],[16] and [17] may be obtained from:

British Standards Institution  
Customer Services, Sales Department  
389 Chiswick High Road, London W4 4AL  
Telephone : 0208 996 9001  
Facsimile : 0208 996 7001

Documents [3],[14] may be obtained from the following URL:  
<http://www.nicc.org.uk/nicc-public/publication.htm>

The ATM Forum documents [2] can be obtained from the following URL:  
<http://www.atmforum.com/>

KCOM Group PLC Customer Interface Publications may be found at [7],[8]:  
[http://www.kcom.com/regulatory/access\\_info.shtml](http://www.kcom.com/regulatory/access_info.shtml)

## 14. History

Date	Issue	Comments	Author
November 2005	Issue 1.0	Supercedes prior Trial Service Documentation	M. D. Crowther
August 2007	Issue 1.1	Change of company name and associated changes	M. D. Crowther
April 2016	Issue 1.2	Change of company name from KC to KCOM and document formatting changes	Amanda Woodard