



## Customer Interface Publication: KCOM (Hull) CIP011

### Technical Characteristics of the 2048 kbit/s (2Mbit/s), 34368 kbit/s (34Mbits/s) and 44736 kbit/s (45Mbit/s) digital leased lines (ATM)

**Issue: 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.

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*Note: this document replaces a Torch Telecom Customer Interface Publication (Torch CIP008) on this subject – see document history.*

## 1. Scope

This document specifies the technical characteristics of the 2048kbit/s (2Mbit/s) , 34368 (34 Mbit/s) and 44736 kbit/s (45 Mbit/s) asynchronous transfer mode (ATM) digital leased line interfaces operated by KCOM Group PLC delivered to a customer at the Network Terminating Point (NTP).

Much of the information contained in this document has been published previously in various documents such as ITU-T, ETSI and BSI standards.

Changes to the network that affect the correct working of approved terminal equipment will be published by KCOM Group PLC in various 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:

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Kingston Upon Hull.  
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Telephone: 01482 602100  
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## 2. General

The 2, 34 and 45 Mbit/s ATM digital leased line services are presented to the customer via ITU-T recommendation G.703 interfaces.

This specification does not exhaustively cover the ATM service aspects. The reader is referred to the ATM Forum document for the User-Network Interface Specification Version 3.1 <sup>[1]</sup> for the full specification. However, the Version 3.1. document did not define the physical aspects of the 2Mbit/s and 34 Mbit/s interfaces. These were subsequently specified in additional documents which are referred to below.

## 3. The Network Termination Point

The network termination point shall be two unbalanced 75ohm BNC sockets labelled TFC IN and TFC OUT.

## 4. Electrical Characteristics of the Interfaces

#### 4.1 2048 kbit/s (2Mbit/s)

The 2Mbit/s ATM digital leased line interface service is delivered using a digital bearer in accordance with clause 9 of ITU-T recommendation G.703 <sup>[2]</sup>.

The jitter, timing, frame structure and ATM transmission convergence sub-layer issues are described in the ATM Forum document for the E1 Physical Interface <sup>[3]</sup>.

#### 4.2 34368 kbit/s (34Mbit/s)

The 34Mbit/s ATM digital leased line interface service is delivered using a digital bearer in accordance with clause 11 of ITU-T recommendation G.703 <sup>[2]</sup>.

The jitter, timing, frame structure and ATM transmission convergence sub-layer issues are described in the ATM Forum document for the E3 Physical Interface <sup>[4]</sup>.

#### 4.3 44 736 kbit/s (45 Mbit/s)

The 45 Mbit/s ATM digital leased line interface service is delivered using a digital bearer in accordance with clause 8 of ITU-T recommendation G.703 <sup>[2]</sup>.

Other characteristics of the interface are defined in section 2 of the ATM Forum document User-Network Interface Specification Version 3.1 <sup>[1]</sup>.

## 5. Safety & EMC Information

### 5.1 Safety

The normal working voltages of the ITU-T recommendation G.703 <sup>[2]</sup> 2 , 34 and 45 Mbit/s ATM digital leased line interface are defined in clauses 9 , 11 and 8 respectively of ITU-T recommendation G.703 <sup>[2]</sup>.

The interfaces presented to the customer is classified as unexposed as defined in the CENELEC Report/ETSI Guide ROBT-002/EG 201 212 <sup>[5]</sup>.

### 5.2 EMC

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

Whilst predominantly installed in commercial and light industrial environments, this does not preclude the interface being installed in other environments e.g. residential, industrial. This should be taken into account by the terminal equipment manufacturer when determining the limits of compliance relevant to their equipment in relation to the protection requirements of the EMC directive.

## 6. Terminal Equipment Specifications

The minimum recommended terminal equipment performance specifications are:

- ITU-T G.703 service : BS PD 7024<sup>[6]</sup>  
BS PD 7026<sup>[7]</sup>

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.

## 7. Glossary

ATM	Asynchronous Transfer Mode
BS	British Standard
BSI	British Standards Institute
DCE	Data Circuit-terminating Equipment
DTE	Data Terminal Equipment
EC	European Community
EMC	Electromagnetic Compatibility
ETS	European Telecommunication Standard
ETSI	European Telecommunications Standards Institute
ITU-T	International Telecommunications Union – Telecommunications Sector
NTE	Network Termination Equipment
NTP	Network Terminating Point
NTTA	Network Terminating and Test Apparatus
PD	Published Document
TE	Terminal equipment
TFC IN	Traffic In
TFC OUT	Traffic Out

## 8. References

Ref	Standard	Title	Date
[1]	ATM Forum UNI Version 3.1	ATM Forum User-Network Interface Specification Version 3.1`	1994
[2]	ITU-T Recommendation G.703	Physical/Electrical Characteristics of hierarchical digital interfaces	2001
[3]	ATM Forum af- phy- 0064.0000	ATM Forum E1 Physical Interface Specification	1996
[4]	ATM Forum af- phy- 0034.0000	ATM Forum E3 Physical Interface Specification	1995
[5]	R0BT-002/EG 201 212 V.1.2.1 (1998-11)	Electrical Safety ; Classification of interfaces for equipment to be connected to telecommunications networks	1998
[6]	PD 7024 : 1995	Essential requirements for Terminal Equipment intended for connection to digital leased lines with 75 ohm G.703 interfaces and rates of 2Mbit/s unstructured	1995
[7]	PD 7026 : 1995	Essential requirements for Terminal Equipment intended for connection to digital leased lines with 75 ohm G.703 interfaces and rates of 34Mbit/s unstructured	1995

The above documents 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

The ATM Forum documents can be obtained from the following URL :

<http://www.atmforum.com/>

**9. History**

Date	Issue	Comments	Author
		Precursor Document Technical Characteristics of the 2Mbit/s, 34Mbit/s and 45Mbit/s digital leased line interfaces (ATM) [Issue 1.0 May 2000] TCH CIP008	M.Budd
December 2003	Issue 1.0	Kingston Communications (HULL) PLC publication to replace the above	M.D.Crowther
August 2007	Issue 1.1	KCOM Group PLC publication to replace the above	M.D.Crowther
April 2016	Issue1.2	KC name change to KCOM and document formatting	Amanda Woodard