



# **TECHNICAL SPECIFICATION**

**FOR**

**EQUIPMENT CONNECTING TO 2.048 Mb/s DIGITAL  
LEASED LINE SERVICES**

**ISSUED BY**

**BOTSWANA TELECOMMUNICATIONS AUTHORITY**

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# Technical Specification for Equipment Connecting to 2.048 Mb/s Digital Leased Line Services

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## Scope

This specification applies to any equipment which offers an interface that may be connected to public 2.048Mb/s Digital Leased Lines in Botswana. This specification assumes that E1 terminal equipment will always connect behind a network termination unit (NTU).

Where terminal equipment supports more than one interface type, each interface must meet the requirements applicable to it. It may therefore be necessary to make reference to additional specifications.

Equipment covered by this specification includes, but is not limited to the Digital Leased Line interfaces of the following equipment types:

- PBX
- Modems
- Routers
- Remote telemetry

## Entry into force

This specification shall enter into force on 01/12/12.

## Document History

Description	Status	Date
First issue of type approval guidelines	Draft	2005
Second issues of type approval guidelines	Current	2007
Third issue of type approval	Revision 1	2012

## Safety and EMC requirements

The following specifications shall be applied:

TS0001: Safety and EMC requirements of radio and telecommunications terminal equipment.

## Technical requirements

The following specifications shall be applied.

**ETSI TBR12**

Business TeleCommunications (BTC);  
2 048 kbit/s digital unstructured leased lines (D2048U);  
Attachment requirements for terminal equipment interface

**ETSI TBR13**

Business TeleCommunications (BTC);  
2 048 kbit/s digital structured leased lines (D2048S);  
Attachment requirements for terminal equipment interface

**ETSI EN 300 248**

Access and Terminals (AT); 2 048 kbit/s digital unstructured leased line (D2048U); Terminal equipment interface

**ACIF/ACA S0016 section 5.3**

Requirements for Customer Equipment for connection to hierarchical digital interfaces

This latter ACIF/ACA standard may be used for either 120 $\Omega$  or 75 $\Omega$  connection.

Where no issue or revision number is quoted along with the title of a technical specification, the latest published version should be used.

## **Additional requirements**

Terminal equipment shall provide a facility to ground the outer conductor or screen of the coaxial pair or the screen of the symmetrical pair in accordance with ITU-T G.703. Section 9.4.

Where it is intended that a 75 $\Omega$  interface connects via a Balun to 120 $\Omega$  services, testing should be carried out with the Balun in place.

## **Obtaining Technical standards**

ETSI technical standards may be obtained free of charge for individual use from the ETSI web site. [www.etsi.org](http://www.etsi.org)