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Specification of the KCH Metallic Path Facility

Issue 2

Network Interoperability Consultative Committee
Oftel
50 Ludgate Hill
London
EC4M 7JJ
UK
http://www.oftel.gov.uk/ind_groups/nicc/

Normative Information

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If you have any comments concerning the accuracy of the contents of this document, please write to:

The Technical Secretary,
Network Interoperability Consultative Committee,
Oftel,
50 Ludgate Hill,
London,
EC4M 7JJ

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1. Foreword and Acknowledgements

In the interests of consistency and to ensure ease of use for Local Loop Unbundling operators, Kingston Communications (Hull) plc (KCH) has adopted a style and format similar to that used by the NICC PNO-IG DSL Task Group for the definition of the BT Metallic Path Facility [1]. Kingston Communications (HULL) plc is grateful for permission to utilise formats and material from this document.

2. Scope

This specification defines the electrical characteristics of the Metallic Path Facility (MPF) provided by KCH under the *Annex* of *Regulation Number 2887/2000 of the European Parliament and Council* [2]. These parameters are defined for the metallic pair from the Main Distribution Frame (MDF) to the Network Terminating Equipment (NTE) in the end user premises. This specification applies to the loop when it is isolated from customer premise wiring and equipment and from Local Loop Unbundling (LLU) operator wiring and equipment.

3. Specification

Parameter	**Value**
Electrical Continuity	The loop will be a continuous metallic connection between MDF in KCH premises and a network termination point at the end customer premises.
Insulation Resistance (A - B or B – A) (Note 1)	>100kΩ
Insulation Resistance (A – E or B – A) (Note 1)	>100kΩ
Insulation Resistance (Wire to Battery) (Note 1)	>100kΩ
Voltage between the wires (Note 2)	$-55 < V_{DC} < +55$ Volts (Note 7) $V_{AC} < 15$Volts
Voltage between either wire and earth (Note 2)	$-55 < V_{DC} < +10$ Volts (Note 7) $V_{AC} < 15$Volts
Loop resistance (Note 3)	<1500 Ω
Difference in measured earth capacitance between A and B	$.85 < C_{AE}/C_{BE} < 1.15$ $.85 < C_{BE}/C_{AE} < 1.15$
Maximum Insertion loss (Note 4)	50dB @100kHz
Insertion loss variation over time (Notes 4,5)	6dB

Notes :

1. Insulation resistance is measured using a voltage of 50 V d.c.

2. The presence of voltages on the pair will be measured with a voltmeter with an internal impedance of 500 kΩ. The bandwidth of the a.c. voltage measurement is 400Hz with a 6dB per octave roll-off.

3. Loop resistance will be measured using a voltage of 80 V d.c.

4. Insertion loss is measured at 100 kHz between 135 Ω resistive loads using a nominal power level of 0 dBm.

5. This parameter is associated with the optional service where the LLU operator can order an insertion loss at MPF provisioning time. KCH would guarantee that the insertion loss of a pair that is not otherwise faulty would not deviate from the initial value by more than 6dB.

6. Any measurement made with respect to earth will be made using the earth at the KCH MDF site. Any measurement made with respect to battery will be made using the KCH exchange battery.

7. D.C voltages of the magnitude specified should only occur as a result of a network fault condition. The MPF user should ensure that equipment utilising the MPF is capable of withstanding D.C voltages of the magnitude specified.

4. Protection

The MPF will be fitted with an overvoltage protection device at the MDF.

The protection device will not be inadvertently triggered as long as the voltage and current limits specified in section 5 are adhered to by the MPF user.

The MPF user should ensure that equipment utilising the MPF is adequately protected against overvoltage.

5. Operation

5.1 Power Feeding

The voltage and current that can be applied by an LLU operator to the KCH MPF must be limited for the following reasons :

- to ensure the safety of KCH personnel when working on the network
- to avoid the need for the personnel to use special insulated gloves or tools
- to protect the network from damage
- to ensure that the overvoltage protection devices (see section 4 above) in the network are not inadvertently triggered

The maximum voltage applied to the MPF shall not exceed values as specified by the TNV requirements in IEC EN 60950-1 [3]. The maximum current shall not exceed 60mA in either leg under any load condition.

To enable the correct TNV category to be determined, the MPF is categorised as "Exposed" in accordance with ETSI EG 201 212 [4].

Exceptionally, if the LLU operator intends to use voltages that exceed the TNV limits as specified in IEC 60950-1, then the remote feeding circuits, either voltage (RFT-V) or current (RFT-C) limited shall comply

with ITU-T K.50 [5] . For the purposes of ITU-T K.50 Annex B (RFT-C) the maximum voltage rating shall be regarded as 200V peak (i.e. less than the limiting voltage of the overvoltage protection devices).

Where RFT circuits are used, the LLU operator is also referred to ITU-T K.51 [6] for the special safety requirements for network infrastructure equipment.

5.2. Wetting Current

In order to maintain the quality of the MPF, the LLU operator is recommended to apply a wetting current. The voltage and current should not exceed the values in clause 5.1.

The voltage should be presented at a negative potential relative to ground.

5.3 Input Signals

Any transverse signal applied to the MPF must comply with the KCH Access Network Frequency Plan.

In addition, the LLU operator is referred to the common mode limits for telecom ports as defined in EN55022 [7].

6. Glossary

a.c.	Alternating Current
d.c.	Direct Current
dB	Decibel
dBm	Decibel referenced to 1 milliWatt
LLU	Local Loop Unbundling
mA	Milli-Ampere
MDF	Main Distribution Frame
MPF	Metallic Path Facility
ms	Milli-seconds
NTE	Network Terminating Equipment
RFT	Remote Feeding Telecommunication Circuit – defined in [5]
RFT-C	A current limited RFT circuit
RFT-V	A voltage limited RFT circuit
TNV	Telecommunications Network Voltage Circuit – defined in [3]

7. References

Reference	Standard	Title	Date
[1]	BT MPF	NICC DSL Task Group – Specification of the BT Metallic Path Facility	19/7/00
[2]	300R2887	Regulation (EC) No 2887/2000 of the European Parliament and of the Council of 18 December 2000 on unbundled access to the local loop (*Official Journal L 336 , 30/12/2000 P. 0004 – 0008)*	18/12/00
[3]	IEC 60950-1	Safety of Information Technology Equipment	2001
[4]	ETSI : 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
[5]	ITU-T K.50	Safe Limits of Operating Voltages and Currents for Telecommunications Systems Powered Over The Network	02/2000
[6]	ITU-T K.51	Safety Criteria for Telecommunication Equipment	02/2000
[7]	EN55022	Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment	1998

8. History

Issue 1	November 2001	First Issue
Issue 2	April 2004	Updated to take account of publication of IEC 60950-1

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