

# **TLN WRO Specification type Document**

< TLN coax patchcord specification for connection  
AO Docsis CPE (modem) to NIU (F male to F male  
59U 2m) >



## Document Housekeeping

### Document Category and type

CAT	TYPE	DOC ID	Comment
TV	SPEC	TLN-WRO-TA-A-S-PAAF	Specification type documents (-SPEC) are documents specifying logical / physical interfaces / protocols, etc..., to which AO equipment/systems need to comply

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### Document Effective Date

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## List of Appendixes

This document may refer to further detailed documents that are added in Appendixes to this document.

A reference to an appendix is in this document highlighted with grey background.

The list with appendixes of this document:

None.

## List of References

This document may refer to external documents or information sources.

A reference to an external document or information source is in this document highlighted with grey background.

The list of referred external documents or information sources in this document:

Reference 1 : <TLN WRO CAT: TV: TLN-WRO-TA-A-C-PAAF>

Reference 2 : <TLN WRO CAT: TV: TLN-WRO-TA-A-C-PAAA>

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Before conversion to PDF format for publication of the document, the information will be made unreadable by converting the background of the text box to black.

# 1 Abstract

This document describes functional specification, requirements and non-functional requirements for TLN coax patch cord for connecting AO Docsis CPE (modem) to NIU (F male to F male 59U 2m). TLN implies AO to follow the requirements and specifications stated in this document.

This document has a corresponding certification document with reference: **TLN-WRO-TA-A-C-PAAF** which is used to test AO WO equipment compliance against this specification.

The feasibility of the technical designs and methods described in this document are subject to verification by a Proof of Concept (POC) test organized by Telenet and may be changed or updated depending on the outcome of this POC.

## **2    Glossary and Abbreviations**

CPE: Customer Precise Equipment  
DOCSIS: Data over Cable Service Interface Specification  
EMC: Electro Magnetic Compatibility  
NIU: Network Interface Unit  
RF: Radio Frequency  
WO: Wall Outlet

### **3     TLN Coax Patchcord Functional Description**

- (1) The purpose of Telenet approved coax patch-cords is to realize in home connections over short distance (0-2,5m range) between WO/NIU and AO CPE equipment (Docus, STB). The specifications ensure quality full and reliable transport of all RF signals in the supported spectrum ranges and also protect network and other equipment integrity on the RF level (ingress and egress radiation).
- (2) Several variants are provided to ensure convenient use and installation taking into account different customer home conditions.

## 4 TLN Coax Patchcord Functional Requirements

### 4.1 RF Requirements

#### 4.1.1 Insertion Loss

- (3) Insertion Loss Requirement for TLN coax patch cord for connection AO Dcsis CPE (modem) to NIU (F male to F male 59U 2m) is shown in below figure.

Parameter	Requirement
Insertion loss 5 - 1000MHz	$\leq 1.5\text{dB}$

Figure 4-1

#### 4.1.2 Return Loss

- (4) Return Loss Requirement for TLN coax patch cord for connection AO Dcsis CPE (modem) to NIU (F male to F male 59U 2m) is shown in below figure.

Parameter	Requirement
Return loss 5 - 1000MHz In	$\geq$ Cenelec Category B
Return loss 5 - 1000MHz Out	$\geq$ Cenelec Category B

Figure 4-2

#### 4.1.3 Attenuation

- (5) Attenuation Requirement TLN coax patch cord for connection AO Dcsis CPE (modem) to NIU (F male to F male 59U 2m) is shown in below figure.

Parameter	Requirement
Attenuation at 20 °C	$< 1.5\text{dB}$

Figure 4-3

#### 4.1.4 Impedance

- (6) Impedance Requirement for TLN coax patch cord for connection AO Dcsis CPE (modem) to NIU (F male to F male 59U 2m) is shown in below figure.

Parameter	Requirement
Impedance	75 $\Omega$

Figure 4-4



#### 4.1.5 EMC Screening

- (7) EMC Screening Requirements for TLN coax patch cord for connection AO Dcsis CPE (modem) to NIU (F male to F male 59U 2m) are shown in below figures.

Parameter	Requirement
Screening effectiveness	Conform Cenelec EN50083-2: Class A

Figure 4-5

Parameter	Requirement
Screening effectiveness 5 - 300MHz	≥85dB
Screening effectiveness 300 - 470MHz	≥80dB
Screening effectiveness 470 - 950MHz	≥75dB
Screening effectiveness 950 - 1000MHz	≥55dB

Figure 4-6

## **4.2 AO Device Management by TLN Requirements**

### **4.2.1 *Concept and purpose***

- (8) As this document describes the “TLN coax patch cord for connection AO Docsis CPE (modem) to NIU (F male to F male 59U 2m)”, concept and purpose for AO Device Management is not applicable.

### **4.2.2 *Device management Functions***

- (9) As this document describes the “TLN coax patch cord for connection AO Docsis CPE (modem) to NIU (F male to F male 59U 2m)”, device management functions are not applicable.

### **4.2.3 *SNMP MIB specifications***

- (10)As this document describes the “TLN coax patch cord for connection AO Docsis CPE (modem) to NIU (F male to F male 59U 2m)”, SNMP management is not applicable.

### **4.2.4 *Reset and Factory Reset specifications***

- (11)As this document describes the “TLN coax patch cord for connection AO Docsis CPE (modem) to NIU (F male to F male 59U 2m)”, Reset and Factory Reset are not applicable.

## 5 TLN Coax Patchcord Non - Functional Requirements

### 5.1 Mechanical Requirements

#### 5.1.1 *Cable mechanical characteristics*

(12) Mechanical Requirements for TLN coax patch cord for connection AO Docsis CPE (modem) to NIU (F male to F male 59U 2m) is shown in below figure.

Parameter	Requirement
Length (connectors included)	2m $\pm$ 5cm
Connectors	F male Cenelec EN50083-4 conform IEC60169-24

Figure 5-1

#### 5.1.2 *Diagnostic Leds*

(13) As this document describes the “TLN coax patch cord for connection AO Docsis CPE (modem) to NIU (F male to F male 59U 2m)”, diagnostic leds are not available.

#### 5.1.3 *Labels*

(14) Following Labels for “TLN coax patch cord for connection AO Docsis CPE (modem) to NIU (F male to F male 59U 2m)” must be printed on cable (indelible - letter height 3...5mm);

- a. “TELENET - INTERKABEL”
- b. Vendor name
- c. Product type

(15) Coax patch cords should be used widespread between TLN and AO connections; so AO WO must strictly comply with all TLN requirements.

#### 5.1.4 *Connectors*

(16) The connectors of “TLN coax patch cord for connection AO Docsis CPE (modem) to NIU (F male to F male 59U 2m)” are F male (straight) to F male (straight) 2m.

(17) The connectors of “TLN coax patch cord for connection AO Docsis CPE (modem) to NIU (F male to F male 59U 2m)” must withstand a pulling force of 20 kg.

## 5.2 Environmental Requirements

### 5.2.1 *Packaging*

(18)The Applicable Requirements about packaging can be found on [TLN-WRO-TA-A-S-PAAA](#).

### 5.2.2 *RoHS and WEEE compliancy*

(19)The Applicable Requirements about RoHS and WEEE compliancy can be found on [TLN-WRO-TA-A-S-PAAA](#).

### 5.2.3 *EU CoC compliancy*

(20)The Applicable Requirements about EU CoC compliancy can be found on [TLN-WRO-TA-A-S-PAAA](#).

## 5.3 Safety Requirements

### 5.3.1 *Surge and Lightning protection*

(21)The Applicable Requirements about surge and lightning protection can be found on [TLN-WRO-TA-A-S-PAAA](#).

### 5.3.2 *Temperature and Humidity*

(22)The Applicable Requirements about temperature and humidity can be found on [TLN-WRO-TA-A-S-PAAA](#).

### 5.3.3 *Fire resistance*

(23)The Applicable Requirements about fire resistance can be found on [TLN-WRO-TA-A-S-PAAA](#).

## 5.4 EU Consumer Goods label Requirements

### 5.4.1 *CE - mark*

(24)The Applicable Requirements about CE - mark can be found on [TLN-WRO-TA-A-S-PAAA](#).