

ADSL over ISDN/POTS Splitter

ATF079SR

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1 Introduction

This section describes specifications for ADSL over ISDN/POTS application. The splitter on the customer premises side or central office side consists of a low pass section that block the high frequency energy form reaching the ISDN/POTS device and provide insulation from impedance effects of the ISDN/POTS device on ADSL.

Because the ISDN/POTS splitter connects directly to the subscriber loop media, it must also provide some protection for externally induced line hits or faults which could damage any attached equipment or endanger humans interaction with the installed equipment.

The circuit protection will be provided mostly be standard central office line protection means and additional protection measures built into the splitter to protect against line overstress which could damage the splitter itself.

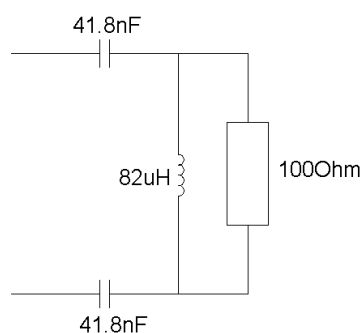
2 Definitions

ISDN: Integrated Services Digital Network

POTS: Plain Old Telephone Service

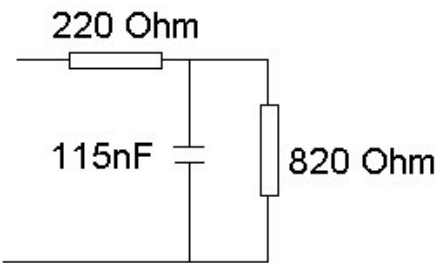
XDSL: Digital Subscriber Line (Including ADSL, HDSL,SDSL and VDSL)

Z_{ADSL} :



Z_{ISDN} : 150 OHM

Z_{POTS}:



Z_{Line}: 135 OHM

3 Dimension

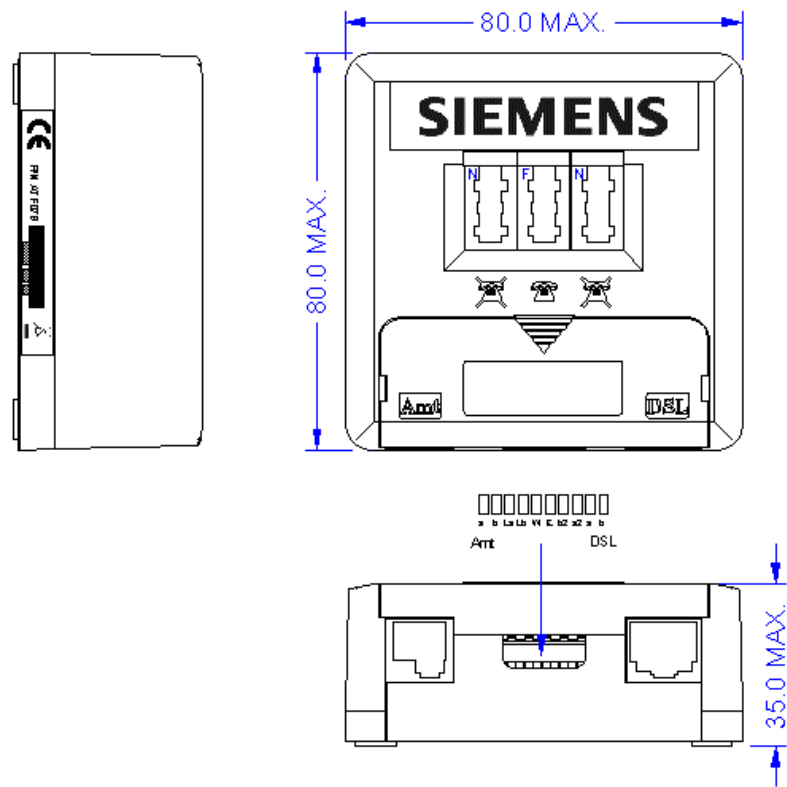


Figure 1

4 Technical requirements

4.1 Schematic

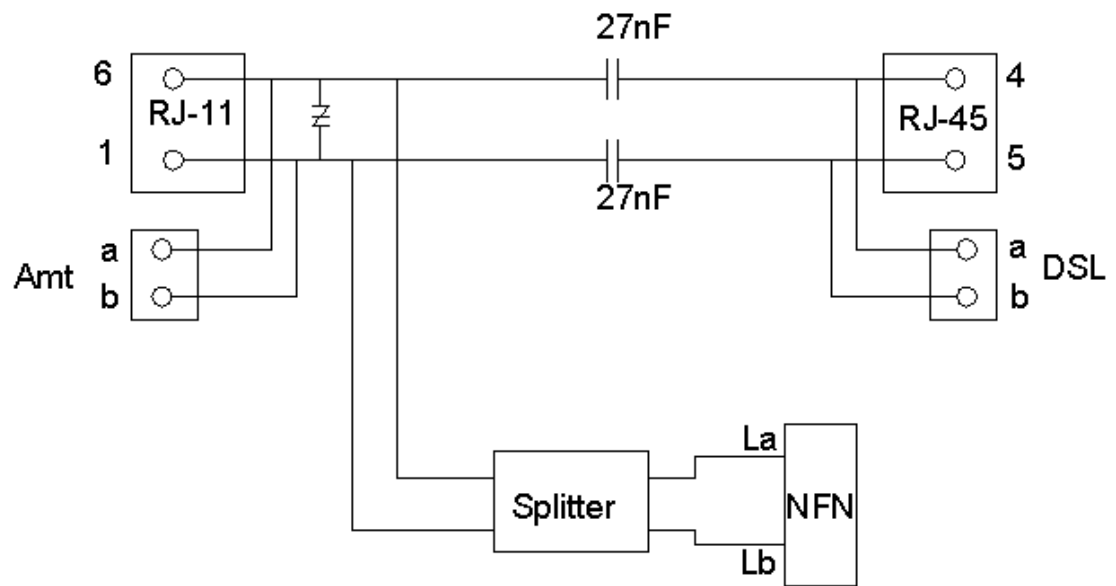


Figure 2

4.2 Test setup

4.2.1 Transmission Line to ISDN/POTS

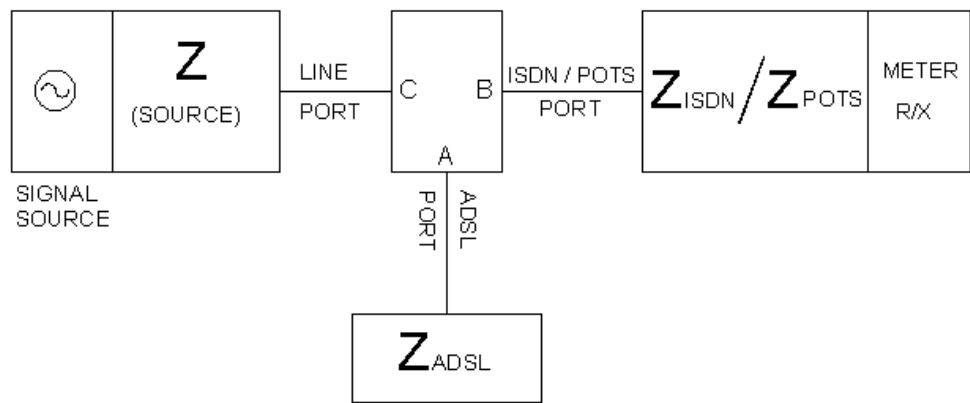


Figure 3

4.2.2 Transmission ISDN/POTS to Line

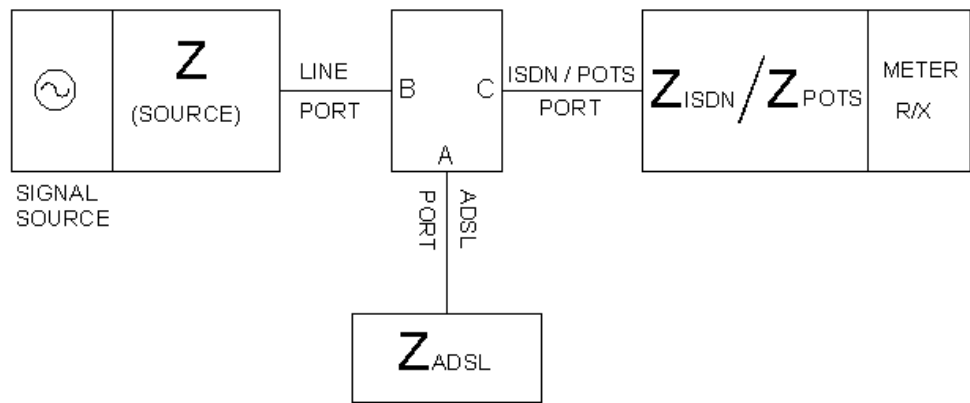


Figure 4

5 Electrical Characteristics (Test setup refer to figure 3 and figure 4)

DCR EACH LINE: 12.5OHM MAX.
DC LOOP CURRENTS: 0-60mA

Item	Spec	Impedance			Frequency
CPE-Site		Port A	Port B	Prot C	
IL _{Line-Phone}	<=1dB @ 1KHz	Z _{ADSL}	Z _{POTS}	Z _{POTS}	
	+/-1.0dB	Z _{ADSL}	Z _{POTS}	Z _{POTS}	300Hz to 3400Hz Ref. @ 1KHz
	<3.0dB	Z _{ADSL}	200 OHM	200 OHM	16KHz +/-1KHz
	<=1.2dB	Z _{ADSL}	Z _{ISDN}	Z _{ISDN}	1KHz to 60KHz
	<=1.5dB		Z _{ISDN}	Z _{ISDN}	1KHz to 60KHz
	<=2.0dB <=2.5dB	Z _{ADSL}	Z _{ISDN} Z _{ISDN}	Z _{ISDN} Z _{ISDN}	60KHz to 80KHz 60KHz to 80KHz
IL _{Line-ADSL}	<=3.0dB	Z _{ADSL}	Z _{ISDN} , Z _{POTS}	Z _{LINE}	120KHz to 170KHz
	<=1.0dB	Z _{ADSL}	Z _{ISDN} , Z _{POTS}	Z _{LINE}	170KHz to 1104KHz

Item	Spec	Impedance			Frequency
CPE-Site		Port A	Port B	Prot C	
Attenuation ADSL-Phone	>=55dB	Z _{ADSL}	Z _{POTS}	Z _{LINE}	138KHz to 2208KHz
Attenuation ADSL-Phone	>=55dB >=65dB >=55dB	Z _{ADSL}	Z _{ISDN}	Z _{LINE}	138KHz to 150KHz 150KHz to 1104KHz 1104KHz to 2208KHz

Item	Spec	Impedance			Frequency
CPE-Site		Port A	Port B	Prot C	
Return Loss	300 to 3400Hz>=12dB	Z _{ADSL}	Z _{POTS}	Z _{POTS}	300Hz to 3400Hz
	600 to 1500Hz>=15dB				
	>=16dB	Z _{ADSL}	Z _{ISDN}	Z _{ISDN}	1KHz to 60KHz
	>=12dB		Z _{ISDN}	Z _{ISDN}	1KHz to 60KHz
	>=14dB	Z _{ADSL}	Z _{ISDN}	Z _{ISDN}	60KHz to 80KHz
	>=10dB		Z _{ISDN}	Z _{ISDN}	60KHz to 80KHz

6 Environmental conditions:

Operating Temperature: 0 ~ 70°C

Storage Temperature: -25 ~ 75°C

Relative Humidity: up to 85% for 0 ~ 35°C

7 Reference

ITU K.21	Resistibility of subscribers terminal to over-voltage and over-currents
ITU K.20	Resistibility of telecommunication switching equipment to over-voltages and over-currents.
ETS 300 001	Attachment to public switched telephone network
U-R2	Description of the U-R2 interface of ADSL system.
ETSI TS 101 952-1-4	Specification of ADSL over “ISDN or POTS” universal splitters.
ETSI TS 101 388 with line code 2B1Q	