TELENOR

NETT

SPECIFICATION

Specification no.: **A52**

Edition: **1**

Date/approval: **000324/Jon Weberg (sign.)**

Access to telephone type leased circuits. Specification of the network side of the user-network interface

Document ID	:	TNS/NI.AN-A52/000322-1
Archive no.	:	
Index words	:	Access, telephone type leased circuits, analogue interface, user-network interface, connection characteristics
Abstract	:	Specification of the connection characteristics and the network side of the user-network interface for telephone type leased circuits

Telenor Nett AS
P.O. Box 6701, St. Olavs plass N-0130 Oslo, Norway
Telephone: + 47 23 25 11 01, Fax: + 47 23 25 10 69
vigdis-helene.bergersen@telenor.com

CONTENT

1 Scope

This specification describes the connection characteristics and the network side the user-network interface for telephone type leased circuits provided by Telenor.

In no event shall Telenor be liable to other parties for any direct, indirect, special, incidental, or consequential damages resulting from errors or defects in these specifications.

2 References

2.1 Normative references

[1] ETSI ETS 300 448: "Business TeleCommunications (BTC); Ordinary quality voice bandwidth 2-wire analogue leased line (A2O); Connection characteristics and network interface presentation", February 1996.

[2] ETSI ETS 300 449: "Business TeleCommunications (BTC); Special quality voice bandwidth 2-wire analogue leased line (A2S); Connection characteristics and network interface presentation", February 1996.

[3] ETSI ETS 300 451: "Business TeleCommunications (BTC); Ordinary quality voice bandwidth 4-wire analogue leased line (A4O); Connection characteristics and network interface presentation", February 1996.

[4] ETSI ETS 300 452: "Business TeleCommunications (BTC); Special quality voice bandwidth 4-wire analogue leased line (A4S); Connection characteristics and network interface presentation", February 1996.

[5] ITU-T Recommendation M.1025: "Characteristics of special quality international leased circuits with basic bandwidth conditioning", March 1993.

[6] ITU-T Recommendation M.580: "Setting up and lining up an international circuit for public telephony", November 1988.

2.2 Informative references

None.

3 Definitions and abbreviations

The definitions and abbreviations given in ETS 300 448 [1], ETS 300 449 [2], ETS 300 451 [3] and ETS 300 452 [4] apply.

4 Classes of telephone type leased circuits

Telenor provides 4 different classes of telephone type leased circuits: Class T, D, S and H.

Class T has the same attributes as ordinary quality telephone type leased circuits, described in ETS 300 448 [1] and ETS 300 451 [3].

Class D is based on the requirements given in ITU-T Rec. M.1025 [5].

Class S has the same attributes as special quality telephone type leased circuits, described in ETS 300 449 [2] and ETS 300 452 [4].

Class H is based on the requirements given in ITU-T Rec. M.580 [6].

5 Telephone type leased circuits, class T

5.1 2-wire circuits

2-wire telephone type leased circuits, class T, are according to the requirements given in ETS 300 448 [1].

5.2 4-wire circuits

4-wire telephone type leased circuits, class T, are according to the requirements given in ETS 300 451 [3].

6 Telephone type leased circuits, class D

6.1 2-wire circuits

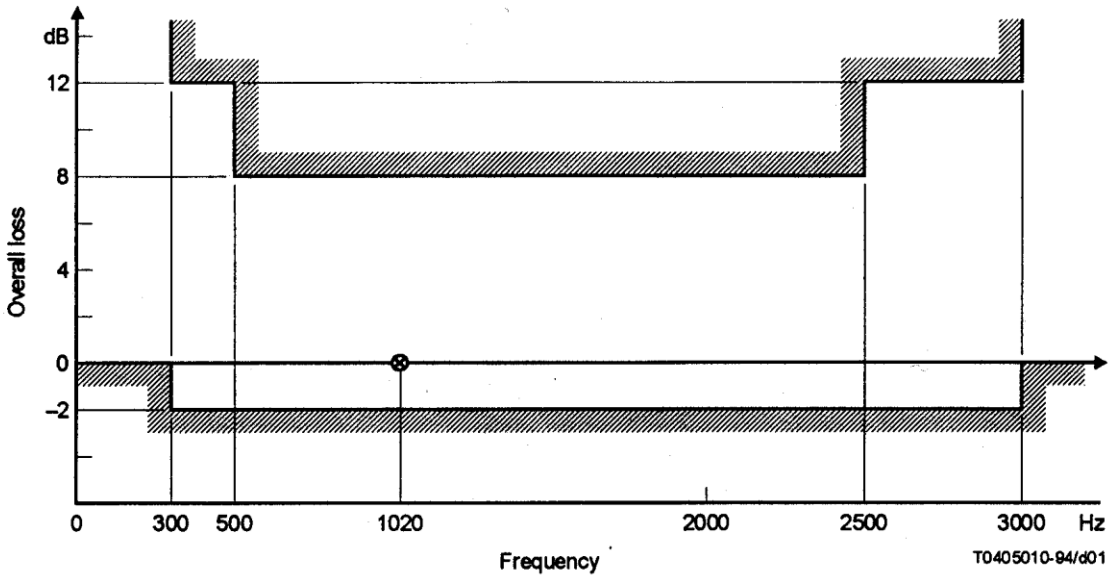
2-wire telephone type leased circuits, class D, are according to the requirements given in ETS 300 448 [1], with the following exceptions:

Subclause 4.1.1: Tabulation of connection characteristics, table 1.

The overall loss is: $0 \leq$ Overall loss ≤ 17 dB (including long term variations).

The loss/frequency distortion is according to the limits given in figure 6.1-1 below.

The group delay distortion is according to the limits given in figure 6.1-2 below.



NOTES

1 Below 300 Hz and above 3000 Hz the loss shall not be less than 0.0 dB, but is otherwise unspecified. These frequencies should be confirmed or amended after further study.

2 1020 Hz is the reference test frequency as explained in Recommendation O.6.

Figure 6.1-1. Limits for loss of the circuit relative to that at 1020 Hz.

Subclause 4.1.2: Overall loss

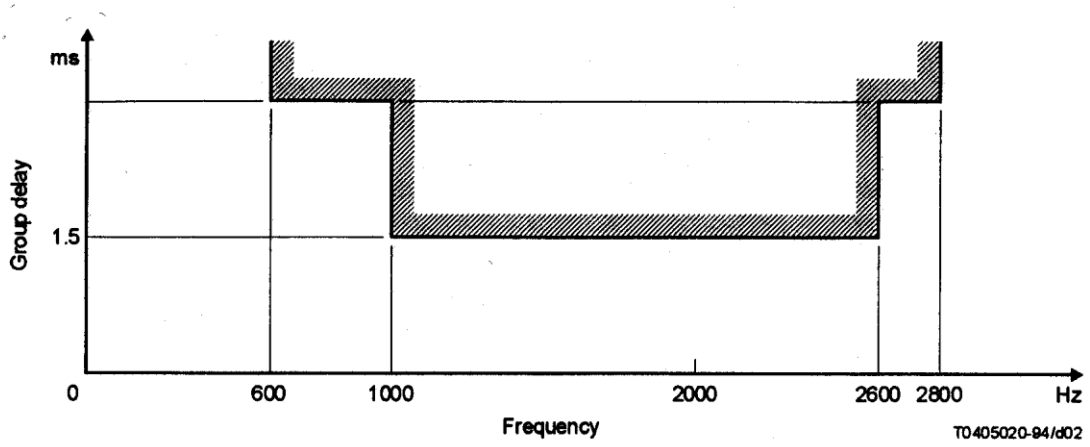
The overall loss is: $0 \leq$ Overall loss ≤ 17 dB (including long term variations).

Subclause 4.1.3: Loss/frequency distortion

The loss/frequency distortion is according to the limits given in figure 6.1-1 above.

Subclause 4.1.6: Group delay distortion

The group delay distortion is according to the limits given in figure 6.1-2 below.



NOTE – It should be noted that the value of 3.0 ms between 600 and 1000 Hz should be confirmed or amended after further study, to ensure that equalization would not be necessary in the majority of cases and that proper modem operation is achieved.

Figure 6.1-2 Limits for group delay relative to the minimum measured group delay in the 500 Hz to 2800 Hz band.

6.2 4-wire circuits

4-wire telephone type leased circuits, class D, are according to the requirements given in ETS 300 451 [3], with the following exceptions:

Subclause 4.1.1: Tabulation of connection characteristics, table 1.

The overall loss is: $0 \leq$ Overall loss ≤ 13 dB (including long term variations).

The loss/frequency distortion is according to the limits given in figure 6.1-1 above.

The group delay distortion is according to the limits given in figure 6.1-2 above.

Subclause 4.1.2: Overall loss

The overall loss is: $0 \leq$ Overall loss ≤ 13 dB (including long term variations).

Subclause 4.1.3: Loss/frequency distortion

The loss/frequency distortion is according to the limits given in figure 6.1-1 above.

Subclause 4.1.6: Group delay distortion

The group delay distortion is according to the limits given in figure 6.1-2 above.

7 Telephone type leased circuits, class S

7.1 2-wire circuits

2-wire telephone type leased circuits, class S, are according to the requirements given in ETS 300 449 [2].

7.2 4-wire circuits

4-wire telephone type leased circuits, class S, are according to the requirements given in ETS 300 452 [4].

8 Telephone type leased circuits, class H

8.1 2-wire circuits

This class of telephone type leased circuit is not delivered with 2-wire interfaces.

8.2 4-wire circuits

4-wire telephone type leased circuits, class H, are according to the requirements given in ETS 300 452 [4], with the following exceptions:

Subclause 4.1.1: Tabulation of connection characteristics, table 1.

The overall loss is: $0 \leq$ Overall loss ≤ 8 dB (including long term variations).

The loss/frequency distortion is according to the limits given in figure 8.2-1 below.

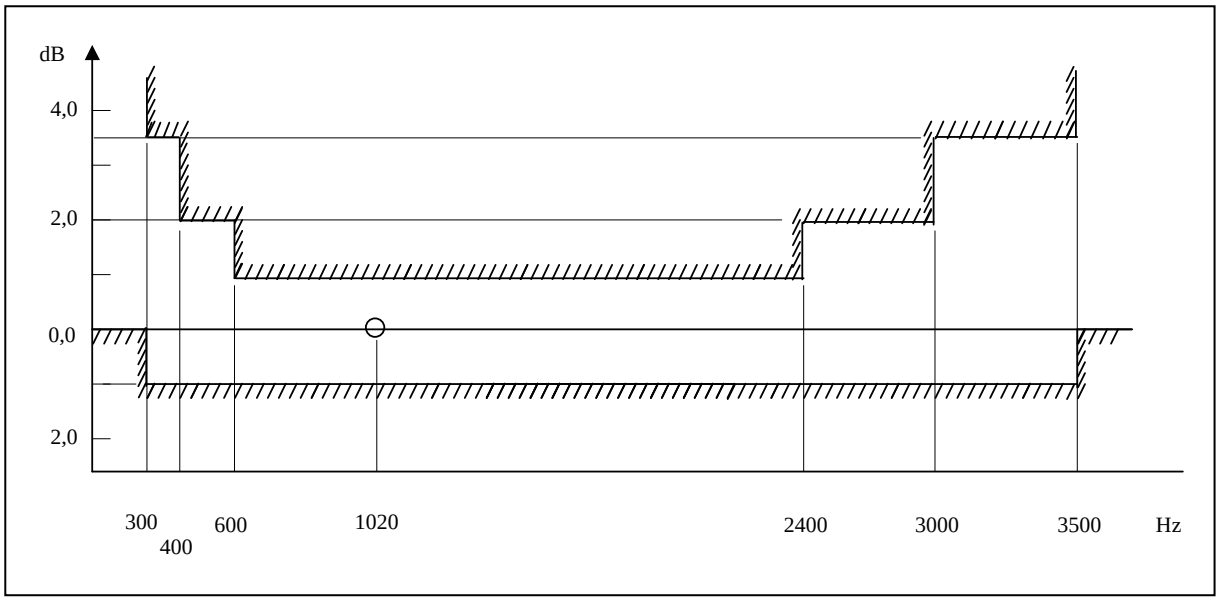


Figure 8.2-1. Limits for loss of the circuit relative to that at 1020 Hz.

Subclause 4.1.2: Overall loss

The overall loss is: $0 \leq$ Overall loss ≤ 8 dB (including long term variations).

Subclause 4.1.3: Loss/frequency distortion

The loss/frequency distortion is according to the limits given in figure 8.2-1 above.

9 Signalling

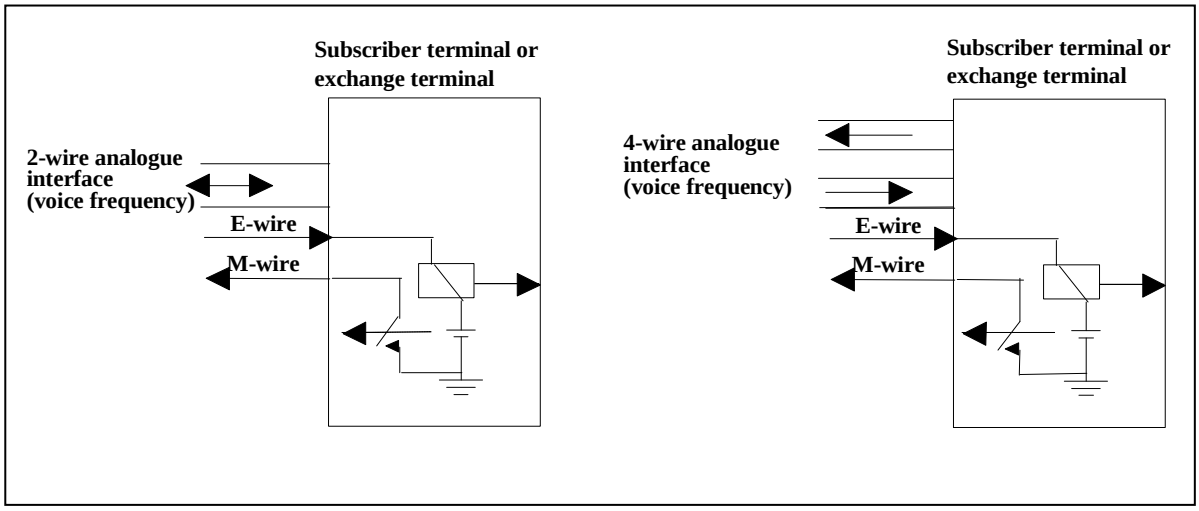
9.1 General

The following out of band signalling types are offered:

- E- and M-signalling on separate wires (E)
- Signalling with ringing signal and dial tone in one direction and DC signalling in the other direction (S)
- DC signalling (L)
- Signalling using magneto apparatus (M).

9.2 E and M signalling

Equipment directly connected to FDM and PCM channels make use of E and M signalling on special signal wires and common ground. The principle is shown in figure 9.2-1 below.



Note: Nominal battery voltage will be 48 V +15/-10 %.

Figure 9.2-1 E and M signalling principle

9.3 Ringing signal and dial tone

The ringing signal will provide an AC voltage with a frequency of 25 Hz ± 2 Hz, and may have a maximum level of up to 55 Vrms superimposed on a feeding voltage limited to 65 volts, giving a total level of 120 volts.

Minimum levels will be 35 Vrms superimposed on 43 volts, giving a total of 78 volts, when the interface is terminated by an impedance of 2,7 kohms (< 3 μF).

The dial tone will be produced by the users equipment and be transmitted in the voice frequency band.

9.4 DC-signalling

DC-signalling is obtained by using special signal converters on the line. The signalling converters are delivered and installed by Telenor, and are usually placed on the premises of Telenor. The DC transmission is limited to two states (for instance ON/OFF) and pulsing.

By using polarity shift in the signal converters of Telenor, simple on/off signalling can be transmitted also in the return direction (return channel).

Mode ON: The subscriber equipment (sender) closes the DC-loop (< 2 kohms)
Mode OFF: The subscriber equipment (sender) opens the DC-loop (>200 kohms)

9.5 Signalling using magneto apparatus (M).

When using magneto apparatus there will be no DC-voltage transmitted from Telenors equipment.

The signalling levels therefore will be AC only, and will have a maximum level of up to 55 Vrms, and minimum level of 35 Vrms, when the interface is terminated by an impedance of 2,7 kohms (< 3 μF).

Telenor Nett AS
P.O. Box 6701, St. Olavs plass N-0130 Oslo, Norway
Telephone: + 47 23 25 11 01, Fax: + 47 23 25 10 69
vigdis-helene.bergersen@telenor.com

ANNEX 1: Document history

Edition	Published	Comments
1-F1	15.3.2000	Produced by Stein Hagen/NT.SX
1	24.3.2000	Produced by Tormod Berntsen /NI.AN