Project: T1E1.4: ADSL

Source: VOCAL Technologies Ltd. 　　　(http://www.vocal.com)

Title: Line Impairment: Detection of home's bridge taps (ATU-R) and

Crosstalk (ATU-C).

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Status: Proposal

ABSTRACT

From VoCAL Technologies' point of view, frequency and time domain probing are very important functions that should be provided within T1.413. The lack of these features could impact the deployment of the xDSL modems especially for developing countries. xDSL modems will be sensitive to line impairments and cross-talk with other lines carrying ISDN, T1/E1 or even other xDSL modems. The reason to ask for including this facility in the T1.413 Issue 2 standard is to assure interoperability between the different companies' design.

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1.   Introduction:

From VoCAL Technologies' point of view, frequency and time domain probing are very important functions that should be provided within T1.413. The lack of these features could impact the deployment of the xDSL modems especially for developing countries. xDSL modems will be sensitive to line impairments and cross-talk with other lines carrying ISDN, T1/E1 or even other xDSL modems. The reason to ask for including this facility in the T1.413 Issue 2 standard is to assure interoperability between the different companies' design.

2.   Need of the features:

Due to the dynamic of the telecommunications, in some cases it is not possible to have a database of the real status of the telephone network, including bridge taps and services that are carried in a specific cable bundle. These problems are more significant in some countries than in others

For these reasons, we propose to include all the tools necessary to the Telephone Companies Operator to detect problems in its own telephone networks. Telcos need to determine the reasons behind a failed connection preferably without any human interaction between the installer and the end user.

From VoCAL Technologies' experience it will be very important to provide these facilities in T1.413 Issue 2. these features are easy to implement, and well known.

The reason because these impairments seem no to be of a crucial importance, is because xDSL modem has not been tested in a real environment, in a Telephone Company Provider with a wide development of the modems.

VoCAL Technologies' proposal gives to implementers enough flexibility in frequencies generation and measurement to simulate signals that will provide information to detect and locate bridge taps as well as Cross-talk Impairment Identification (from ISDN, T1/E1 or other xDSL systems) and diagnosis of failed xDSL connections.

3.   Gathering information about the state of the subscriber's line:

These techniques commonly rely on ATU-R services requested by the ATU-C. These common services are:

- Frequency tone probes generation (there could be probing of several tones at a time).
- Frequency level measurement (there could be measurement of several tones at a time).
- ATU-R state information.
- ATU-R symbol/signal recording and transfer.
- ATU-R displayable operator message.