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STUDY GROUP 15 Original: English

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Question: 4/15

SOURCE[1]: VOCAL Technologies Ltd.

TITLE: G.gen.bis: G.dmt.bis: G.lite.bis: G.vdsl: What means Turbo Coding for G.992.2.bis, G.992.1.bis and G.vdsl modems?

ABSTRACT

This contribution presents a quantification of the impact of Turbo Codes for G.992.2.bis, G.992.1.bis and G.vdsl.

1. Introduction

This contribution presents a quantification of the impact of Turbo Codes for G.992.2.bis, G.992.1.bis and G.vdsl.

2. Impact for G.992.2.bis

2.1 Extended reach for the same data rate in kft.

G.992.2.bis	24 AWG	26 AWG
Upstream	2.64	1.98
Downstream	1.94	1.48

2.2 Increase in data rate for the same loop length in Mbps

G.992.2.bis	24 AWG	26 AWG
Upstream	0.13	0.11
Downstream	0.56	0.46

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3. Impact for G.992.1.bis

3.1 Extended reach for the same data rate in kft.

G.992.1.bis	24 AWG	26 AWG
Upstream	2.04	1.58
Downstream	1.34	1.28

3.2 Increase in data rate for the same loop length in Mbps

G.992.1.bis	24 AWG	26 AWG
Upstream	0.16	0.12
Downstream	1.14	0.81

4. Impact for G.vdsl

In the case of G.vdsl, using 4096 carrier and having more than 3dB of coding gain respect to Trellis Code Modulation, means one more bit per tone.

This represents around 4096 x 4000 = 16.4 Mbps more using Turbo C oding than using Trellis Code Modulation.

5. Summary

The present paper relates to a technique for implementation of Turbo Code for DSL modems. Taken into account the benefits of Turbo Codes for DSL modems it is recommend to include turbo Codes in the next DSL's ITU Recommendations.

1. Agenda Item: G.992.1.bis issue 4.6 and G.992.2.bis issue 10.14. G.vdsl issue 11.17
2. Expectations: The committee accepts the inclusion of Turbo codes for G.992.1.bis, G.992.2.bis and G.vdsl.