



ETSI WG TM6
(ACCESS TRANSMISSION SYSTEMS ON METALLIC CABLES)

Permanent Document

TM6(99)08 rev 8

Living List for Spectral Management

SpM - part 1

revision of TR 101 830-1

This document is the living list of current issues connected with ETSI's spectral management report TR 101 830, part 1 (*Definitions and Signal Library*).

The latest version (v1.2.1) of "part 1" has officially been published on august 28th 2001, by ETSI. This work is extended for including full signal descriptions for VDSL and ADSL-FDD (both "over POTS" and "over ISDN"). The target is to achieve working group approval by the end of the ETSI-TM6 meeting in sept 2002. This means that the second revision of the SpM report can be published by ETSI during autumn 2002. Issues that are (still) unsolved by that time, may be scheduled for a succeeding revision.

The issues related to "Part 2" and "Part 3" are beyond the scope of this living list.

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mark the above changes, since feb 2001

1. STUDY POINTS PART 1 (SIGNAL LIBRARY)

SP	Title	Owner	Status
1-1	Complete signal description for ADSL FDD over POTS	Peter Reusens (Alcatel)	Under Study
1-2	Complete signal description for ADSL FDD over ISDN	Peter Reusens (Alcatel)	Under Study
1-3	Complete signal description for ISDN-PRA		Deleted
1-4	Improvement of scope and legal status of report		Deleted
1-5	Review of peak amplitudes of all signals in the library		Deleted
1-6	Complete signal description for SDSL		Agreed
1-7	Review of power feeding issues	Rasmus Trevland - NPTA	Agreed
1-8	Complete signal description for ADSL ADL	Peter Reusens (Alcatel)	Under Study
1-9	Harmonizing of spectral management Terminology	Rob Kirkby (BT)	Under Study
1-10	Definition of PSD Terminology	Paul Donaldson (Wcom)	Under Study
1-11			
1-12			
1-13			
1-14			

The current agreed procedure for changing the status of living list items is in Annex A of TM6 working methods.

Part 1 study points**SP 1-1. Complete signal description for ADSL FDD over POTS**

The ADSL standard is dedicated to echo cancelled systems, using signals with frequency overlap. FDD versions of ADLS, with no frequency overlap, do exist as proprietary systems, but are not (yet) covered by ETSI standards. As a result a signal description for Spectral Management purposes is lacking.

This study point is dedicated to define the description of a signal category for FDD versions of ADSL over POTS, which follows the ETSI standard that is being prepared for FDD versions of ADSL.

Status: Under study (most of this issue has recently been solved within the ADSL standard)

SP 1-2. Complete signal description for ADSL FDD over ISDN

Similar to study point 1-1, but dedicated to ADSL-FDD over ISDN.

Status: Under study (most of this issue has recently been solved within the ADSL standard)

SP 1-3. → *Obsolete*

SP 1-4. → *Obsolete*

SP 1-5. → *Obsolete*

SP 1-6. → *Obsolete*

SP 1-7. Review of power feeding issues

This study point is dedicated to improve some inconsistencies and ambiguities on the Power Feeding clauses. The current numbers are system dependent, while the power feeding issue is more related to (system independent) safety requirement.

The update of TR 101 830-1 (v1.2.1) has made this visible, by dedicating class "A" and "B" power feeding to (system independent) safety requirement, and by dedicating class "X" and "Y" to system dependent implementations. When the descriptions of class "A" and "B" have been completed, these classes "X" and "Y" may become obsolete. Contributions are invited.

Status: Agreed

Related Contributions:

- *TD20, Monterey 2000 - Modification of information on Feeding Power - NPTA*
- *TD13, Sophia 2001 - Modification of information on Feeding Power - NPTA*
- *TD16, Stockholm 2001 - Modification of text in clause 7 - NPTA*

SP 1-8. Complete signal description for ADSL ADL

This study point is dedicated to define a complete description of a signal category, as summarized in the informative annex E of the (draft) ADSL standard. That annex deals with characteristics of "all digital loop" signals

SP 1-9. Harmonizing of spectral management Terminology

Currently, some inconsistent terminology is used in different , contributions and documents about spectral management "rules" and involved "bodies". This confuses SpM discussions. After some debate in TM6, the idea of using the following terminology was sounding:

Bodies: "loop provider" and "network operator" (The latter can be refined by prefixes like "incumbent" or "competitive" network operator, if required).

Rules: "deployment rules", "access rule" and "purity rule".

This study point is dedicated to generate relevant text for this terminology.

Status: Under study (see text attached to this living list, updated according to the latest views)

Related Contributions:

- TD37, Torino 2002 - Harmonizing some terminology about Spectral Management - KPN

SP 1-10. Definition of PSD Terminology

During the discussions in TM6 about VDSL PSD's, it became clear that concepts like PSD "masks" and "templates" are sometimes mixed up. The same applies for prefixes like "nominal" and "peak". Consistent terminology is lacking,

This study point is to generate relevant text for this PSD terminology, that is as close as possible to commonly used terminology and existing standards.

Status: Under study (see text attached to this living list, updated according to the latest views)

Related Contributions:

- TD37, Torino 2002 - Harmonizing some terminology about Spectral Management - KPN

Text proposals, being candidate for inclusion into the Draft .

The text fragments below have been proposed for inclusion in the draft version of SpM part 1, but are still in the "under study" status. If agreement is achieved, they will be moved to the Draft.

Text portion for inclusion into clause 3.1

Loop provider: company facilitating access to the local loop wiring. (In several cases the loop provider is historically connected to the incumbent network operator, but other companies may serve as loop provider as well)

Network operator: company that makes use of a local loop wiring for transporting telecommunication services. This definition covers *incumbent* as well as *competitive* network operators.

(Spectral) Access Rule: Mandatory rule for achieving access to the local loop wiring, equal for all *network operators* that make use of the same network cable, that bounds the crosstalk in that network cable.

(Spectral) Deployment Rule: Voluntary rule, irrelevant for achieving access to the local loop wiring and proprietary for individual *network operators*. Deployment rules reflect the private view of the network operator about what maximum length or maximum bitrate he prefers for offering his transmission service to ensure a chosen minimum quality of service.

(Spectral) Purity Rule: Voluntary rule, irrelevant for achieving access to the local loop wiring and proprietary for individual *loop providers*. Purity rules reflect the private view of the loop provider about additional preparatory activities for facilitating access to the local loop wiring (such as wire pair selection or manipulation) in order to keep the crosstalk in the cable as low as possible.

PSD: A signal characteristic in the frequency domain, equal to the Fourier transform of the autocorrelation of that signal. Due to the mathematical nature of this definition, a direct measurement of this quantity (according to the definition) is often impractical. PSD values can be estimated, however, from narrow band signal power measurements within a known resolution bandwidth (Wiener Khintchine theorem). These spectral measurements are only *approximations* of the PSD, unless the PSD is frequency independent within that resolution bandwidth. The definition of a PSD is independent of any resolution bandwidth, while spectral measurements require a specification of the resolution band being used.

Peak mask of a PSD: This is the absolute upper bound of a PSD, measured within a specified but relatively *narrow* resolution bandwidths; for instance 10 kHz for signals up to 1 MHz. The purpose of peak masks is often to specify spectrum management compliance, since it enables bounding of "worst case" values of a (single sided) PSD.

Nominal mask of a PSD: This is the absolute upper bound of a PSD, measured within a specified but relatively *wide* resolution bandwidth; for instance 100 kHz for signals up to 1 MHz. The purpose of peak masks is often to specify spectrum management compliance, since it enables bounding of "average" values of a (single sided) PSD. On the edges of PSDs, however, the nominal mask tend to be more capacious, due to the wider nature of the resolution band, and the meaning of their values becomes often limited within these frequency bands.

Template of a PSD: These levels represent nominal signal characteristics in the frequency domain, not related to any resolution bandwidth. It is intended to be a fair replica of a (single sided) PSD for modeling crosstalk and calculating noise margin. Template levels are often close to the levels of a nominal mask in frequency bands with flat PSD, but may deviate significantly from that nominal mask near the edges of PSDs.