ITU - Telecommunication Standardization Sector Temporary Document WH-026

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Question: 4/15

SOURCE[1]: Matsushita Electric Industrial Co. Ltd. (Japan), Texas Instruments, AMD, 3Com

TITLE: G.hs: Escape mechanism for regional standards

ABSTRACT

G.hs is intended to be a robust mechanism for activating a multiplicity of xDSL. Activation of regional standards or legacy devices can be handled by implicit (escape) or explicit (non-standard facilities) mechanisms. To help ease unnecessary fears, the contribution aims to discuss the spirit of G.hs escapes.

1. Introduction:

The contribution addresses the following G.dmt open issue:

11.6	Open	Should G.dmt have the requirement to recognize ANSI T1.413i2 activation tones?

As agreed to in G.hs issue 5.1 (agreed 2/98), we propose that all activation issues only be considered and accomodated in G.hs:

5.1	Agreed (2/98)	that the functionality from G.dmt sections 10.2 and 10.3, shall be included in G.hs

Further, the issue of T1.413 activation tones was already resolved at the Study Group level in Geneva (2/98) as reported in G.hs issue 3.1:

3.1	Agreed (2/98)	that G.hs shall be modulation based, and shall allow for an escape mechanism to other xDSL network access systems. G.hs shall not specify a tone based negotiation technique (e.g., as in T1.413).

To help ease unnecessary fears, the contribution aims to discuss the spirit of G.hs escape mechanisms in lieu of the availability of the G.hs working text.

2. Discussion:

G.hs is intended to be a robust mechanism for activating a multiplicity of xDSL modulations in the presence of unknown equipment with unknown transceiver PSDs. Activation of regional standards or legacy devices can be handled by two different methods: implicitly (activation via escape) or explicitly (activation via nonstandard facilities). These two methods will be discussed in sections 2.2 and 2.3.

2.1 Regional Standards Activation Spectrum

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In order to facilitate the use of an escape based activation, G.hs should avoid the use of spectrum around areas of known regional standard activation signals. In G.hs issue 2.12 it was already agreed to avoid the spectrum of T1.413 activation tones.

2.12	Agreed (5/98)	to avoid the T1.413 - Issue 2 activation tones (R-ACT-REQ, C-ACTx, C-TONE) to allow an escape to that standard from G.hs (relates to item 1.4)

It is proposed that the G.hs issues list include additional details to indicate avoidance of other spectrum portions. Some regional standards and the activation spectrum that could be considered include :

Regional Standard	Signal	Spectrum
POTS and Billing Tones		0 - 20 kHz
T1.413 Issue 2:	R-ACT-REQ	34.50 kHz (#8)
	C-ACT1	207.00 kHz (#48)
	C-ACT2	189.75 kHz (#44)
	C-ACT3	224.25 kHz (#52)
	C-ACT4	258.75 kHz (#60)
	C-TONE	310.50 kHz (#72)
ETSI: ADSL over ISDN:	R-ACT-REQ	181.125 kHz (#42) (proposed)
CAP/QAM		?? - ?? kHz

2.2 Activation via Escape

To facilitate the startup of devices which might implement Annex A, B, or C of G.dmt with differing PSDs, G.hs will need to monitor several different frequency bands. Thus, a device that also supports a regional standard (such as T1.413) could concurrently monitor for the regional standard activation signals while monitoring for G.hs activation signals. A table of example algorithms:

Device:	Capabilities	Algorithm
ATU-C	T1.413	Waits for R-ACT-REQ, Ignores G.hs activation signals Initiates T1.413 when receives R-ACT-REQ
ATU-C	T1.413 & G.hs	Waits for R-ACT-REQ or G.hs tone Initiates as appropriate
ATU-R	T1.413	Transmits R-ACT-REQ and waits for C-TONE or C-ACT Ignores any ATU-C G.hs activation signals
ATU-R	T1.413 & G.hs	Transmits G.hs activation, If no response to G.hs activation, transmits R-ACT-REQ

2.3 Activation via Non Standard facilities

G.hs allows the transmission of a non standard message that indicate a different modulation. Regional standards can be explicitly negotiated through non standard facilities.

3. Summary:

G.dmt and G.hs do not need to specify the activation signals for regional standards. Implicit and explicit methods allow regional standard activation.

1. Discussion area: G.hs, escape system

2. Expectations:
   - Close G.dmt issue 11.6.
   - Consider other regional standard activation signals under G.hs issue 2.12 (See Section 2.1 for details)