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**ITU-T**

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

**G.825**

**Amendment 1**

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SERIES G: TRANSMISSION SYSTEMS AND MEDIA,  
DIGITAL SYSTEMS AND NETWORKS

Digital networks – Quality and availability targets

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The control of jitter and wander within digital  
networks which are based on the synchronous  
digital hierarchy (SDH)

**Amendment 1**

Recommendation ITU-T G.825 (2000) – Amendment 1



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## **Recommendation ITU-T G.825**

### **The control of jitter and wander within digital networks which are based on the synchronous digital hierarchy (SDH)**

#### **Amendment 1**

##### **Summary**

Amendment 1 to Recommendation ITU-T G.825 contains the STM-256 rate jitter parameters and specifications.

##### **Source**

Amendment 1 to Recommendation ITU-T G.825 (2000) was approved on 22 May 2008 by ITU-T Study Group 15 (2005-2008) under Recommendation ITU-T A.8 procedure.

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## Recommendation ITU-T G.825

### The control of jitter and wander within digital networks which are based on the synchronous digital hierarchy (SDH)

#### Amendment 1

#### 1 Scope

This amendment contains material to be added to Recommendation ITU-T G.825 in terms of STM-256, 40 Gbit/s rate signals.

#### 2 Changes to Recommendation ITU-T G.825

The following clauses contain changes to be made to Recommendation ITU-T G.825.

##### 2.1 Modifications to clause 2

Add the two following references to clause 2:

- Recommendation ITU-T G.693 (2006), *Optical interfaces for intra-office systems*.
- Recommendation ITU-T G.959.1 (2006), *Optical transport network physical layer interfaces*.

##### 2.2 Modifications to clause 5.1, network limits for jitter

Add the STM-256 values to Table 1, and delete the obsolete note concerning STM-64, as follows:

**Table 1 – Maximum permissible jitter at network interfaces**

Interface	Measurement bandwidth, –3 dB frequencies (Hz)	Peak-to-peak amplitude (UIpp)
STM-1e (Notes 1, 2)	500 to 1.3 M	1.5
	65 k to 1.3 M	0.075
STM-1 (Note 3)	500 to 1.3 M	1.5
	65 k to 1.3 M	0.15
STM-4 (Note 3)	1 k to 5 M	1.5
	250 k to 5 M	0.15
STM-16 (Note 3)	5 k to 20 M	1.5
	1 M to 20 M	0.15
STM-64 (Note 3)	20 k to 80 M	1.5
	4 M to 80 M	0.15 (Note 3)

**Table 1 – Maximum permissible jitter at network interfaces**

Interface	Measurement bandwidth, –3 dB frequencies (Hz)	Peak-to-peak amplitude (UI <sub>pp</sub> )
STM-256 (Note 3)	80 k to 320 M	1.5
	16 M to 320 M	0.18
NOTE 1 – Electrical format CMI-encoded, according to G.703.		
NOTE 2 – For networks deployed with G.813 Option II clocks or G.812 Type II, III or IV clocks, STM-1 requirements apply to STM-1e.		
<del>NOTE 3 – The effect of dispersion and non-linearities on the eye opening and on the choice of this value is for further study.</del>		
NOTE 3 – STM-1	1 UI = 6.43 ns	
STM-4	1 UI = 1.61 ns	
STM-16	1 UI = 0.402 ns	
STM-64	1 UI = 0.100 ns	
STM-256	1 UI = 0.025 ns	

### 2.3 Modifications to clause 6.1.2.4, STM-64 jitter tolerance

*In clause 6.1.2.4, delete the following text:*

~~For the purposes of practical conformance testing, the characteristics of the transmit eye mask need to be carefully considered. This is for further study.~~

### 2.4 New clause 6.1.2.5, STM-256 jitter tolerance

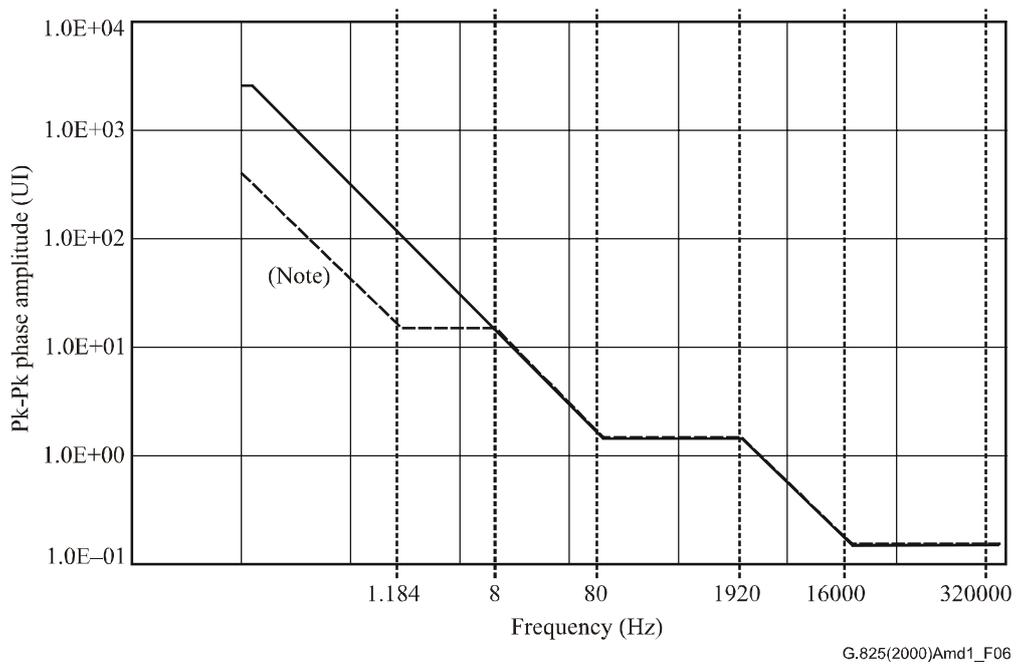
*Insert a new clause 6.1.2.5 as follows:*

#### 6.1.2.5 STM-256 jitter tolerance

The level of jitter that must be accommodated by STM-256 SDH interfaces is specified in Table 8 and illustrated in Figure 6.

**Table 8 – STM-256 input jitter and wander tolerance limit**

Frequency f (Hz)		Requirement (Peak-Peak)
2048 kbit/s networks	1544 kbit/s networks	
–	10 < f ≤ 1184	17760 f <sup>-1</sup> UI
–	1184 < f ≤ 8 k	15 UI
10 < f ≤ 12.1	–	9953 UI (0.25 μs)
12.1 < f ≤ 8 k	–	1.2 x 10 <sup>5</sup> f <sup>-1</sup> UI
8 k < f ≤ 80 k		1.2 x 10 <sup>5</sup> f <sup>-1</sup> UI
80 k < f ≤ 1.92 M		1.5 UI
1.92 M < f ≤ 16 M		2.88 x 10 <sup>6</sup> f <sup>-1</sup> UI
16 M < f ≤ 320 M		0.18 UI



NOTE – The dashed curve is the requirement for 1544 kbit/s networks for frequencies less than 2 kHz.

**Figure 6 – STM-256 jitter tolerance**





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