

# ITU-T

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

# G.825

**Amendment 1**  
(05/2008)

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

ITU-T G-SERIES RECOMMENDATIONS  
TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

INTERNATIONAL TELEPHONE CONNECTIONS AND CIRCUITS	G.100–G.199
GENERAL CHARACTERISTICS COMMON TO ALL ANALOGUE CARRIER-TRANSMISSION SYSTEMS	G.200–G.299
INDIVIDUAL CHARACTERISTICS OF INTERNATIONAL CARRIER TELEPHONE SYSTEMS ON METALLIC LINES	G.300–G.399
GENERAL CHARACTERISTICS OF INTERNATIONAL CARRIER TELEPHONE SYSTEMS ON RADIO-RELAY OR SATELLITE LINKS AND INTERCONNECTION WITH METALLIC LINES	G.400–G.449
COORDINATION OF RADIOTELEPHONY AND LINE TELEPHONY	G.450–G.499
TRANSMISSION MEDIA AND OPTICAL SYSTEMS CHARACTERISTICS	G.600–G.699
DIGITAL TERMINAL EQUIPMENTS	G.700–G.799
DIGITAL NETWORKS	G.800–G.899
General aspects	G.800–G.809
Design objectives for digital networks	G.810–G.819
<b>Quality and availability targets</b>	<b>G.820–G.829</b>
Network capabilities and functions	G.830–G.839
SDH network characteristics	G.840–G.849
Management of transport network	G.850–G.859
SDH radio and satellite systems integration	G.860–G.869
Optical transport networks	G.870–G.879
DIGITAL SECTIONS AND DIGITAL LINE SYSTEM	G.900–G.999
QUALITY OF SERVICE AND PERFORMANCE – GENERIC AND USER-RELATED ASPECTS	G.1000–G.1999
TRANSMISSION MEDIA CHARACTERISTICS	G.6000–G.6999
DATA OVER TRANSPORT – GENERIC ASPECTS	G.7000–G.7999
PACKET OVER TRANSPORT ASPECTS	G.8000–G.8999
ACCESS NETWORKS	G.9000–G.9999

*For further details, please refer to the list of ITU-T Recommendations.*

## **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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## CONTENTS

		Page
1	Scope .....	1
2	Changes to Recommendation ITU-T G.825 .....	1
2.1	Modifications to clause 2.....	1
2.2	Modifications to clause 5.1, network limits for jitter .....	1
2.3	Modifications to clause 6.1.2.4, STM-64 jitter tolerance.....	2
2.4	New clause 6.1.2.5, STM-256 jitter tolerance.....	2



## 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 (U <sub>Ipp</sub> )
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:*

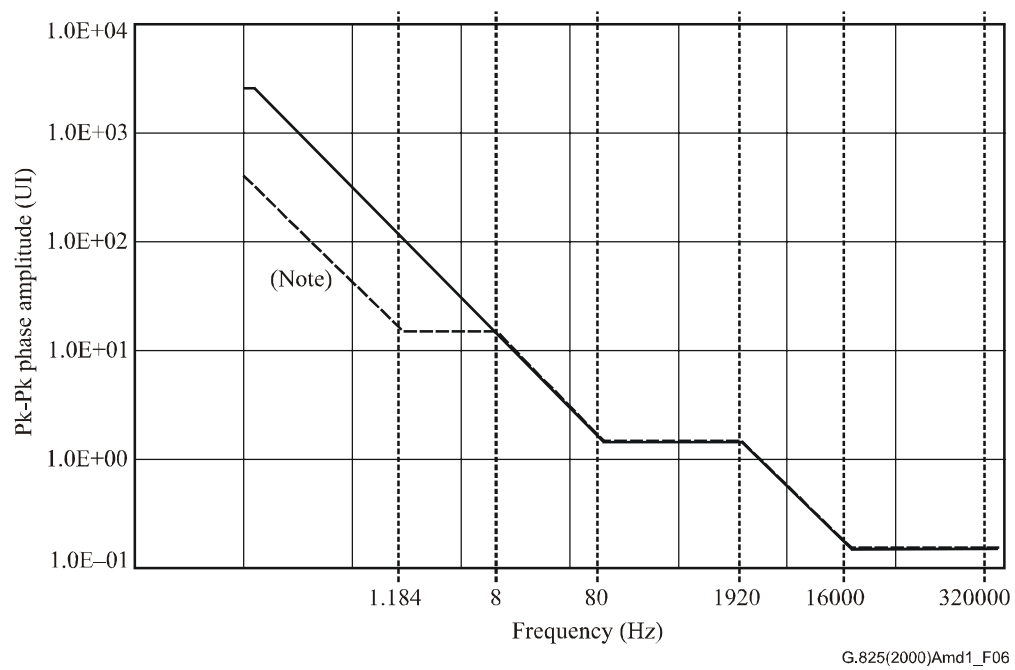
#### 6.1.2.5 STM-256 jitter tolerance

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	
–	$10 < f \leq 1184$	$17760 f^{-1}$ UI
–	$1184 < f \leq 8 \text{ k}$	15 UI
$10 < f \leq 12.1$	–	9953 UI (0.25 $\mu$ s)
$12.1 < f \leq 8 \text{ k}$	–	$1.2 \times 10^5 f^{-1}$ UI
$8 \text{ k} < f \leq 80 \text{ k}$		$1.2 \times 10^5 f^{-1}$ UI
$80 \text{ k} < f \leq 1.92 \text{ M}$		1.5 UI
$1.92 \text{ M} < f \leq 16 \text{ M}$		$2.88 \times 10^6 f^{-1}$ UI
$16 \text{ M} < f \leq 320 \text{ M}$		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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Series D	General tariff principles
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Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
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