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G.841
Corrigendum 1
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SERIES G: TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

Digital networks – SDH network characteristics

Types and characteristics of SDH network protection architectures
Corrigendum 1

ITU-T Recommendation G.841 (1998) – Corrigendum 1

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ITU-T Recommendation G.841

Types and characteristics of SDH network protection architectures

Corrigendum 1

Source

Corrigendum 1 to ITU-T Recommendation G.841 (1998) was prepared by ITU-T Study Group 15 (2001-2004) and approved under the WTSA Resolution 1 procedure on 16 August 2002.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

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Corrigendum 1

1   Introduction

This corrigendum contains editorial and technical corrections to the 1998 revision of ITU-T Rec. G.841.

2   Corrections to Table 7-4

Changes to Table 7-4 are indicated by revision marks.

Table 7-4/G.841 – 1:n bidirectional protection switching without extra traffic example

Failure condition or controller state	APS bytes				Action	
	C → A		A → C			
	byte K1	byte K2	byte K1	byte K2	at C	at A
No failures (protection section not in use)	0000 0000	0000 1000	0000 0000	0000 1000	Null signal is bridged to protection. Selector is released.	Null signal is bridged to protection. Selector is released.
Working section 2 degraded in direction A → C	1010 0010	0000 1000	0000 0000	0000 1000	Failure detected. Request normal traffic signal 2 bridge – SD.	
	1010 0010	0000 1000	0010 0010	0010 1000		Bridge normal traffic signal 2. Reverse request normal traffic signal 2 bridge.
	1010 0010	0010 1000	0010 0010	0010 1000	Switch normal traffic signal 2 from protection section. Bridge normal traffic signal 2 to protection.	
	1010 0010	0010 1000	0010 0010	0010 1000		Switch normal traffic signal 2 from protection. Bidirectional switch completed.

Table 7-4/G.841 – 1:n bidirectional protection switching without extra traffic example

Failure condition or controller state	APS bytes				Action	
	C → A		A → C			
	byte K1	byte K2	byte K1	byte K2	at C	at A
Working section 1 failed in direction C → A	1010 0010	0010 1000	1100 0001	0000 1000		Failure detected. Request normal traffic signal 1 bridge – SF. Release normal traffic signal 2 switch <u>and bridge</u>.
(This pre-empts the normal traffic signal 2 switch)	0010 0001	0001 1000	1100 0001	~~0010 1000~~ <u>0000 1000</u>	Bridge normal traffic signal 1 to protection. Reverse request normal traffic signal 1 bridge. Release normal traffic signal 2 switch.	
	0010 0001	0001 1000	1100 0001	0001 1000		Switch normal traffic signal 1. Bridge normal traffic signal 1.
	0010 0001	0001 1000	1100 0001	0001 1000	Switch normal traffic signal 1. Bidirectional switch completed.	
Working section 1 repaired	0010 0001	0001 1000	0110 0001	0001 1000		Wait to restore.
(Working section 2 still degraded)	1010 0010	~~0001 1000~~ <u>0000 1000</u>	0110 0001	0001 1000	Request normal traffic signal 2 bridge. Release normal traffic signal 1 switch <u>and bridge.</u>	
	1010 0010	~~0001 1000~~ <u>0000 1000</u>	0010 0010	0010 1000		Bridge normal traffic signal 2. Reverse request normal traffic signal 2 bridge. Release normal traffic signal 1 switch.
	1010 0010	0010 1000	0010 0010	0010 1000	Bridge normal traffic signal 2. Switch normal traffic signal 2.	

Table 7-4/G.841 – 1:n bidirectional protection switching without extra traffic example

Failure condition or controller state	APS bytes				Action	
	C → A		A → C			
	byte K1	byte K2	byte K1	byte K2	at C	at A
Working section 1 repaired (Working section 2 still degraded)	1010 0010	0010 1000	0010 0010	0010 1000		Switch normal traffic signal 2. Bidirectional switch completed.
Working section 2 repaired Wait to restore expired (no failures)	0110 0010	0010 1000	0010 0010	0010 1000	Wait to restore normal traffic signal 2.	
	0000 0000	0010 1000	0010 0010	0010 1000	Drop normal traffic signal 2 bridge order. Release normal traffic signal 2 switch.	
	0000 0000	0010 1000	0000 0000	0000 1000		Drop normal traffic signal 2 bridge <u>Drop</u>. Drop normal traffic signal 2 bridge request. Release normal traffic signal 2 switch.
	0000 0000	0000 1000	0000 0000	0000 1000	Drop normal traffic signal 2 bridge. Null signal is bridged to protection.	Null signal is bridged to protection.

3 Note to clause 7.2.4.2 paragraph 3

A Note is added in clause 7.2.4.2, after paragraph 3:

NOTE – There is an issue with interworking the protection scheme with WDM systems. The issue occurs when four-fibre spring traffic is carried over a WDM system and, depending upon the order of repair of a failed WDM link, it may cause the protection scheme to "flap" between worker and protection. This issue is currently under study.

4 Text replacing part of 7.1.2.1

The manual switch null signal should no longer be used for 1:n protection without extra traffic. The second paragraph of item 4) in clause 7.1.2.1 should be revised as follows:

For 1 + 1 systems ~~or 1:n systems without extra traffic~~, manual switch null signal transfers the working section back from protection to the working section, unless an equal or higher priority request is in effect. Since manual switch has lower priority than SF or SD on a working section, this command will be carried out only if the working section is not in SF or SD condition. "Manual

Switch Null Signal" has higher priority than "Manual Switch – Normal Traffic Signal 1" when both commands are detected at the same time.

5 Correction to Table B.1

Note 2 to Table B.1 is revised as follows:

NOTE 2 – In the case of Signal Degrade (SD) on both working sections, no protection switching should take place. ~~Depending on the order in time of the individual SD, the selectors may be switch to section 1 or section 2. In any case, no switching should take place.~~

6 Editorial changes to Table B.5

Changes to Table B.5 are indicated by removing underlining revision marks.

Table B.5/G.841 – Example of 1 + 1 bidirectional switching optimized for a network using predominantly 1 + 1 bidirectional switching – Forced Switch from Working Section 2

Failure condition or controller state	APS bytes				Action	
	C → A		A → C			
	byte K1	byte K2	byte K1	byte K2	at C	at A
No fault condition traffic on channel 2	0000 0000	0010 0000	0000 0000	0010 0000		
Forced Switch from section 2 at side C	1110 0010	0010 0000	0000 0000	0010 0000	Detect local request. Update K1.	
	1110 0010	0010 0000	0010 0010	0010 0000		Detect remote request. Switch ~~to channel 2~~ from channel 2 (to channel 1). Issue Reverse Request.
	1110 0010	0010 0000	0010 0010	0010 0000	Detect reverse request. Switch from channel 2 (to channel 1). ~~to channel 2~~.	
Clear Forced Switch at side C	0000 0000	0001 0000	0010 0010	0010 0000	Send no request. Update K1, K2.	
No Switch active. Traffic on section 1	0000 0000	0001 0000	0000 0000	0001 0000		Send no request. Update K1, K2.

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