COVERING NOTE

GENERAL SECRETARIAT INTERNATIONAL TELECOMMUNICATION UNION

Geneva, 30 May 2003

ITU – TELECOMMUNICATION
STANDARDIZATION SECTOR

Subject: Erratum 1 (05/2003) to

ITU-T Recommendation G.722 (11/1988), *7 kHz audio-coding within 64 kbit/s*

Summary

This erratum contains typographical corrections that are needed in ITU-T Rec. G.722 (1988). The typos and the inadequate description of a figure were found in Fascicle III.4 of the Blue Book (1988), and in the corresponding electronic files posted on ITU website. The Table 1 contains a description of the changes.

Table 1 – List of necessary corrections in the text of ITU-T Rec. G.722

No.	Reference	Errors Description	Blue Book	Electronic versions
1	3.6.3	Introductory sentence should contain $a_{L,2}$.	Typo	←
2	Table 13	Initialization should not be applied to APH2.	Typo	←
		Initialisation should be applied to NBH.	Typo	←
3	Table 14, QQ4 and WL	Entries should cover address range 0-7, not 1-8.	OK	Typo
4	Table 19	Title should be "5-bit" not "S-bit".	OK	Typo
5	Table 20	Second entry in MIH column should be 1, not 2.	Typo	←
6	6.2.1, Figure 19	Decoder input "IRL" should be "ILR".	Typo	←
7	6.2.1.2, INVQAL description	The line beginning "WD2 = " has a minus sign before the bracket. It should be after the bracket, in front of the lower "WD1".	Typo	←
8	6.2.1.3, SCALEL description	The equation beginning "WD3 =" should have a closing bracket immediately after "WD1".	Typo	←
9	6.2.2.1	HDU table entry should refer Q2, not Q6.	OK	Typo
10	6.2.2.4, Figure 30	Missing output arrow for YH.	Missing	←

1) Clause 3.6.3 "*Pole section adaptation"*
(*for both Blue-Book version and web electronic versions*)

Add $a_{L,2}$ to the list in the first sentence of clause 3.6.3 as follows:

The second order pole section is adapted by updating the coefficients, $a_{L,1}$, $a_{L,2}$, $a_{H,1}$, $a_{H,2}$, using a simplified gradient algorithm:

2) Clause 6.2, Table 13/G.722 "Internal processing variables"
(*for both Blue-Book version and web electronic versions*)

Delete the asterisk after APH2 and add an asterisk after NBH entry as follows:

Lower sub-band ADPCM		
Name	Binary representation	Description
...	...	...
APH1, APH2	S, 0, -1, -2, ..., -13, -14	Second-order pole section coefficients
...	...	...
NBH*	S, 3, 2, 1, 0, ..., -10, -11	Delayed logarithmic quantizer scale factor
...	...	...

Note - * indicates variables which should be initialized to a specific value when a reset condition is applied.

3) Clause 6.2, Table 14/G.722, sub-table "Lower sub-band quantizer",
(*applies only to web electronic versions*)

Modify columns QQ4 and WL as follows, in order that entries cover address range 0-7, not 1-8.

Lower sub-band quantizer					
Address	Q6	QQ6	QQ5	QQ4	WL
0				0	–60
1	35	17	35	150	–30
2	72	54	110	323	58
3	110	91	190	530	172
4	150	130	276	786	334
5	190	170	370	1121	538
6	233	211	473	1612	1198
7	276	254	587	2557	3042
8	323	300	714		
9	370	347	858		
10	422	396	1023		
11	473	447	1219		
12	530	501	1458		
13	587	558	1765		
14	650	618	2195		
15	714	682	2919		
16	786	750			
17	858	822			
18	940	899			
19	1023	982			
20	1121	1072			
21	1219	1170			
22	1339	1279			
23	1458	1399			
24	1612	1535			
25	1765	1689			
26	1980	1873			
27	2195	2088			
28	2557	2376			
29	2919	2738			
30		3101			

4) Clause 6.2, Table 19/G.722
(*applies only to web electronic versions*)

Modify as follows Table 19 title:

Conversion from 5-bit codewords to quantizer intervals

5) Clause 6.2, Table 20/G.722 "Conversion from quantizer intervals to 2-bit output codewords"
(*for both Blue-Book version and web electronic versions*)

Modify as follows 2nd entry in MIH column:

SIH	MIH	IH
–1	2	00
–1	1	01
0	1	11
0	2	10

6) Clause 6.2.1, Figure 19/G.722
(*for both Blue-Book version and web electronic versions*)

Modify the symbol of the Decoder input signal from IRL to ILR as follows:

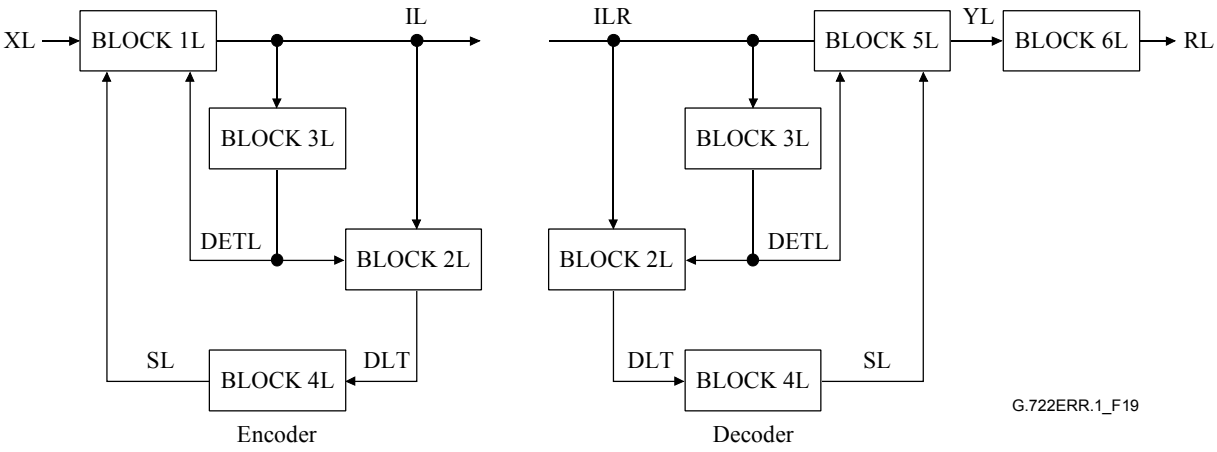

Figure 19/G.722 – Lower sub-band ADPCM encoder and Decoder

7) Clause 6.2.1.2, in INVQAL description

(*for both Blue-Book version and web electronic versions*)

Modify WD2 calculation as follows:

INVQAL

Inputs: IL (ILR in the decoder), DETL

Output DLT

Function: Compute the quantized difference signal for the adaptive predictor in the lower sub-band.

RIL = IL >>> 2	Delete 2 LSB
SIL and IL4 are obtained from Table 17/G.722 using RIL. Use IL4 as an address for QQ4 in Table 14/G.722	Derive sign of DLT

WD1 = QQ4(IL4) << 3

WD2 = WD1	if SIL = = 0	Scale table constant
WD2 = – WD1	if SIL = = –1	Attach sign

DLT = DETL ∗ WD2

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8) Clause 6.2.1.3, SCALEL description

(*for both Blue-Book version and web electronic versions*)

Insert omitted closing bracket in WD3 equation as follows:

SCALEL

Inputs: NBPL

Output: DEPL

Note - Either Method 1 or Method 2 is used.

Function: Compute the quantizer scale factor in the lower sub-band.

Method 1 (using 353-entry table)

WD1 = (NBPL >> 6) & 511 WD2 = WD1 + 64	Compute table address for ILA
Use WD2 as an address for ILA in Table 15/G.722	
DEPL = (ILA(WD2) + 1) << 2	Scaling by 2-bit shift

Method 2 (using 32-entry table)

WD1 = (NBPL >> 6) & 31	Fractional part of NBPL
WD2 = NBPL >> 11	Integer part of NBPL
Use WD1 as an address for ILB in Table 15/G.722.	
WD3 = ILB(WD1) >> (8 - WD2)	Scaling with integer part
DEPL WD3 << 2	Scaling by 2-bit shift

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9) Clause 6.2.2.1, in the table with "Quantizer decision levels and corresponding MIH values" for the QUANTH block
(*applies only to web electronic versions*)

Correct the table as follows:

WD		MIH
Lower decision level (HDL)	Higher decision level (HDU)	
0	(Q2 (1) << 3) ∗ DETH	1
otherwise		2

10) Clause 6.2.2.4, Figure 30/G.722
(*for both Blue-Book version and web electronic versions*)

Add an output arrow for YH as follows:

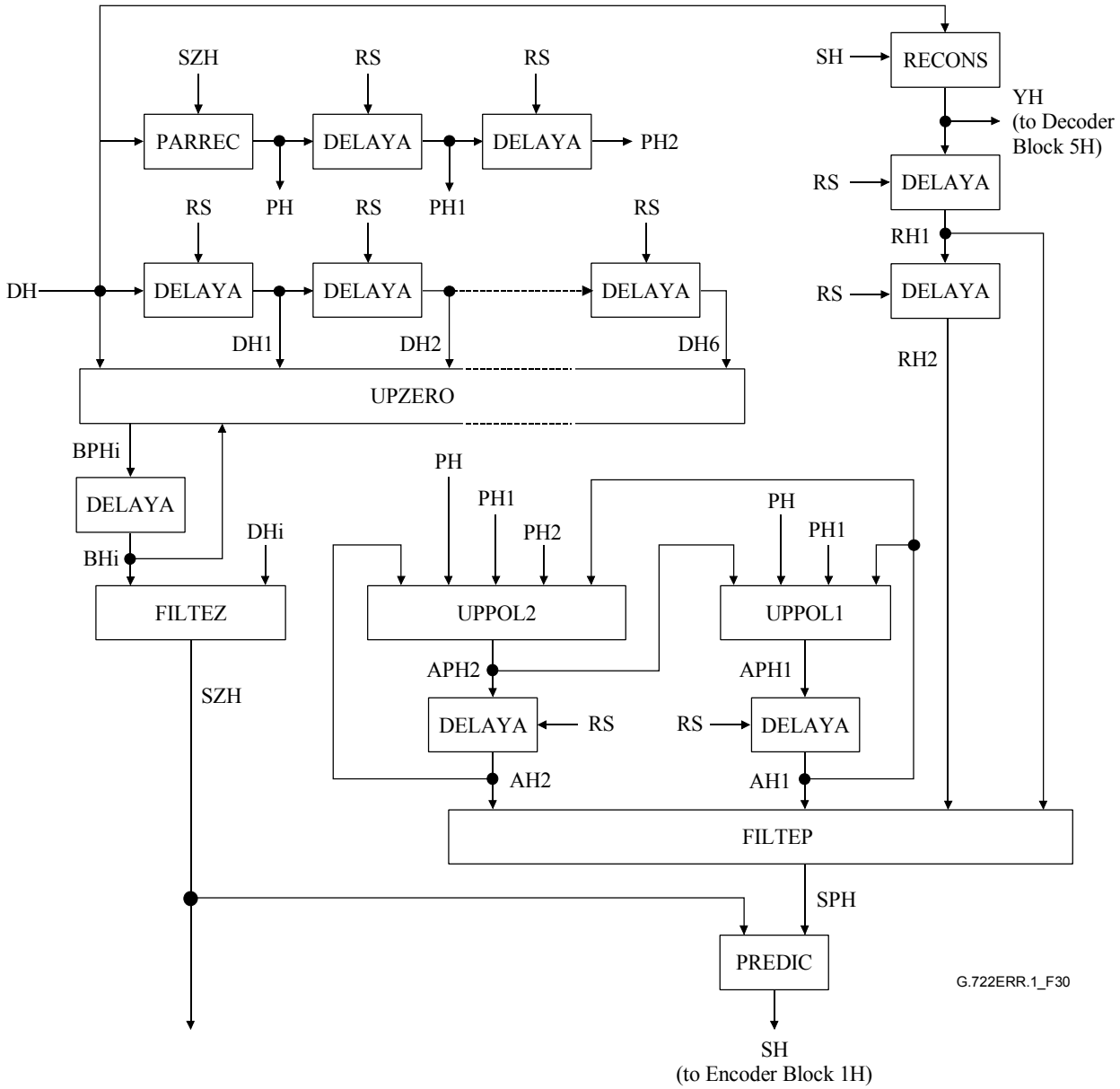

Figure 30/G.722 – Adaptive predictor and reconstructed signal calculator in the higher sub-band